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Engraved by J. Le Keux. from a Drawing by T. Landseer for the Illustrations of Natural History.

THE GIRAFFE OR CAMELEOPARD,

as seen with his Keeper in the "Jardin du Roi", at Paris.

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ILLUSTRATIONS of NATURAL HISTORY:

Embracing

A SERIES OF ENGRAVINGS

and Descriptive Accounts

OF THE MOST INTERESTING AND POPULAR

GENERA AND SPECIES

OF

THE ANIMAL WORLD.

Conducted by J. Le Keux

THE ENGRAVINGS BY J. LE KEUX & R. SANDS.

VOL. I.

QUADRUPEDS.

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NATURAL HISTORY.

PART I.—QUADRUPEDS.

THE HORSE.

Among the numerous animals created for the use and gratification of mankind, there is no one class which more eminently deserves a place, next to the human race, in a history of this nature, than that of the Horse.

The noblest conquest ever made by man over the brute creation was that of making this spirited and haughty animal subservient to his commands, which shares with him the fatigues of war and the glory of victory; he sees his danger, participates in it with his master, and encounters death with bravery: inspired at the clash of arms, he loves it, and pursues the enemy with the same ardour and resolution. He feels pleasure also in the chase and in tournaments; in the course he is all fire, but equally tractable and courageous. He not only submits to the arm which guides him, but frequently seems to consult the desires of his rider; and, generally obedient to the impressions he receives, presses on or stops at his rider's pleasure. The Horse is a creature which gives himself up without reserve to the services of man, frequently exerts himself beyond his strength, and often dies sooner than disobey. Such is the Horse, whose talents and natural qualities art has improved, and who with care has been tutored for the service of man: his education commences with the loss of his liberty, and is finished by constraint. The slavery or servitude of the Horse is so

universal and so ancient, that we rarely see him in his natural state. They are generally covered with harness when at work, and are not always wholly free from their bonds even when at rest. If they are sometimes suffered to range in the fields, they usually bear about them the marks of servitude, and frequently the external impressions of labour and pain: the mouth is deformed by wrinkles occasioned by the bit, the sides scared with wounds inflicted by the spur, and the hoofs are pierced with nails. Nature is more beautiful than art; and in an animated being, the freedom of its movements makes its existence more perfect. Observe the horses of Spanish America, which have multiplied so fast, and live in freedom; their motions seem neither constrained nor regular: proud of their independence, they fly the presence of man, and disdain his care; they wander and race about in immense meadows, where they feed on the fresh productions of perpetual spring. Destitute of any fixed habitation, without any other shelter than a mild sky, they breathe a purer air than those which are confined in vaulted stables. Hence wild horses are stronger, swifter, and more nervous, than the greater part of domestic ones; they have strength and nobleness, the gifts of nature, while the others have address and gracefulness, which is all that art can give. The natural disposition of wild horses is not ferocious, they are only high-spirited and wild. Formed for strength and fleetness, to carry and to draw heavy weights, and to convey his rider over a great extent of ground in a short space of time, the Horse is unequalled by all other animals.

These characteristics will be fully exemplified in the ensuing pages, whilst the illustrative prints will faithfully portray the forms and distinctive features of the *Arabian*, the *racer*, the *hunter*, the *coach-horse*, the *cart* or *draught horse*, the *forester*, and the *ponies* of *Wales* and *Scotland*.

As most parts of Europe are at present well peopled, wild horses are no longer found therein. Those in America

originated from European tame horses which were transported thither by the Spaniards; and they are found to have multiplied considerably in the vast deserts of that continent. The astonishment and fear which the inhabitants of Mexico and Peru expressed at the sight of horses and their riders, is a strong presumption that this animal was entirely unknown in the New World. The Spaniards conveyed thither a great number, as well for service as to propagate the breed; they left them on many islands, and even let them loose on the continent, where they have multiplied like other wild animals.

M. la Salle, in 1685, saw in the northern parts of America, near the Bay of St. Louis, large troops of them feeding in the pastures, which were so wild that they fled the approach of man. The author of the *History of the Bucaniers* says, "that in the Island of St. Domingo horses are sometimes seen in troops of 500, all running together; that when they see a man they all stop; and that one of them will approach within a certain distance; he then snorts, takes flight, and is instantly followed by all the rest." He adds, "that he does not know whether these horses, by becoming wild, have degenerated or not; but that he did not think them so handsome as those of Spain, though they are descended from the same breed. They have" (continues he) "large heads and limbs, and their ears and limbs are also long: the inhabitants easily tame them, and afterwards force them to work. To catch them, nooses, made of ropes, are spread at places where they frequent; but if they are caught by the neck, they presently strangle themselves unless assistance is near; they are then fastened by the body and legs to the trees, where they are left for two days without either food or drink. This experiment is sufficient to make them somewhat tractable; and in a little time they become as much so as if they had never been wild."

Though superior in strength to most other animals, the Horse never attacks them; and if assailed, it either disdains

its foes and flies, or gives a fatal blow with its natural weapon, the hind heel. Horses congregate in troops merely for the pleasure of being together, for they have no fear of, but an attachment to, each other. As grass and vegetables are sufficient for their nourishment, they have enough to satisfy their appetites; and as they have no relish for the flesh of other animals, they never make war with them, nor engage in any thing like civil war amongst themselves. They live in peace, because their appetites are simple, and nature has supplied them with ample provision; and having enough, there is no object for contention. All these circumstances may be observed in young horses, which are brought up and led together in droves: their manners are gentle, and tempers social; they seldom shew their ardour and strength by any other sign than emulation. They endeavour to be foremost in the course, are animated to brave danger in crossing a river or leaping a fence; and those which are ringleaders in these natural exercises are observed, when reduced to a domestic state, to be the most generous, docile, and gentle.

In Turkey, Persia, and Arabia, the custom of taking care of and feeding them is the same. Their litter is made of their own dung, which is first dried in the sun to take off the ill smell, then reduced into powder, and a bed made in the stable or tent, four or five inches thick. This litter lasts a long while; for when soiled, it is dried in the sun a second time, and again loses its disagreeable odour.

In some parts of Tartary they make use of large birds of prey to hunt their wild horses: they are taught to seize him by the neck or head, upon which he sets off with the greatest speed, and continues running until he is quite exhausted, without being able to extricate himself from his tormentor. The wild horses of Mongous and Kakas Tartars are so swift, that they often escape the arrows of the most expert hunters; they generally keep together in large numbers, and if tame ones come near them will surround them, unless

they instantly take to flight. There are a great number of wild horses in Congo: they at times are seen at the Cape of Good Hope; but the inhabitants preferring those from Persia, they are scarcely ever caught.

In South America is found a horse whose hoofs are divided, like those of a ruminant quadruped. In its general appearance, size, and colour, it resembles the ass, but has the voice and ears of a horse, and has no bands crossing the shoulders. It is very wild, swift, and strong.

The duration of the life of horses, like that of every other species of animals, is proportioned to the time of their growth. Man, who is above fourteen years in growing, lives six or seven times as long, to 90 or 100. The horse, which attains his whole growth in four years, lives also six or seven times as long, that is, to 25 or 30. There are so few exceptions to this rule, that we cannot draw any precedents from them; and as the robust horses are at their entire growth in less time than the delicate ones, they also live less time, seldom exceeding fifteen years.

The usual method of walking among quadrupeds is to lift, at the same time, one of the fore legs of one side and one of the hind legs of the other. As their bodies are sustained upon four points of support, which form an oblong square, the easiest manner of moving for them is to change two at once with the diagonal, in such a manner that the centre of gravity of the body may rest always in the direction of the two points which are not in motion. In the three natural paces of the Horse — the walk, the trot, and the gallop — this rule of motion is always observed, though with some difference.

Age in horsemanship forms a very important branch of knowledge, and consists in being enabled to judge of the progress of a horse's years from correspondent alterations in his body.

The teeth are usually examined for this purpose, as they exhibit in almost all horses the same changes in appearance

and form at stated periods. This becomes necessary, as there are few whose knowledge is sufficiently extensive to enable them to judge of the age by any other means; but where it can be done, it is much more useful than by this ordinary mode: for in this country, where horses are ridden very hard, and consequently early ruined, it is not uncommon to find a horse at six years old, feeble, debilitated, and exhibiting all the marks of old age, excepting his mouth: on the contrary, when the animal falls into other hands, at ten or twelve he has all the vigour of youth, and his teeth are the only parts that present an indication of age: it is, therefore, more useful to examine the general appearance of the animal, than to be guided altogether by marks in the teeth; for, provided the Horse has not been too early worked, nor too hard rode, and has no natural nor accidental defects, his nominal age should be but a secondary consideration. It is a custom of some excellent horsemen never to hunt their horses till they are eight or nine years old, — a period at which other horses are usually refused as aged, and unfit for fatigue. Horses, when aged, usually become hollow above the eyes, the hoofs get rugged, the under lip falls, and if gray, they become white. We may also know, though with less precision, the age of a horse by the ridges of the palate, which are effaced in proportion to his age.

The Horse has forty teeth, including the tushes, which are thus distinguished. Twenty-four are called grinders, being placed at the bottom, or back part of the mouth, beyond the bars; twelve on each side of the channel, viz. six above, and six below, on each side. These teeth continue, and do not give place to new teeth in their room, so that they are of no use in distinguishing a horse's age; and they are subject to wolves' teeth. In regard to the other sixteen, twelve of them are called in their infancy milk or foal teeth; and the remaining four go by the name of tushes. The twelve foal teeth are short, small, and white, and are seated

on the fore part of the mouth, six above, and six below; and these change and cast, to give place to others, which, in process of time, become long, large, and yellowish.

These new teeth are distinguished by different names, given them according to their putting forth; and it is the manner of their coming forth that gives the knowledge of the first years of a horse's age.

Of these twelve, four are called *nippers*, four *middling* teeth, and four go by the name of *corner* teeth. The four nippers are seated on the FORE PART of the mouth, two above and two below. When a horse has put forth these, he is concluded to be from two and a half to three years old; but *it is a custom with dishonest dealers to draw the colt's nippers, and particularly the corner ones*, by which means the permanent set, which are underneath, immediately appear, and the horse is considered much older than he is; but if the other appearances detailed here are attended to, this may be readily detected.

The middling teeth are placed next to the nippers or gatherers, one above and one below, on each side of the jaws. They come out and appear between three and a half and four years. The corner teeth are placed a little more backward in the mouth, one above and one below, on each side of the jaws.

They begin to shoot between the fourth and the fifth year, and are just to be seen above the gum at five years; and when they have surmounted the gum at large, they become hollow, and mark commonly till seven or eight years. By marking is meant, that in the hollow or cavity of the corner teeth a little black speck is formed, which from its resemblance is called the bud or eye of a bean, or the mark; but when the horse passes six, the cavity begins to fill, and the black mark disappears by degrees: yet this diminution of the cavity and the mark continues from six to seven and a half. However, at eight years the cavity is filled up, and the black mark gone; and the tooth is then full and even, as if

it had been shaved. It is then said that the horse has raised, which happens a little before the eighth year, and after that the horse does not mark; so that the surest knowledge of his age is then formed from his tushes.

The tushes are placed beyond the corner teeth, upon the bars, two on each side below, without being preceded by any foal teeth. The two under tushes cut sometimes at four; but the two upper tushes sometimes at four, sometimes at four and a half—sometimes before, and sometimes after the corner teeth, without any certain rule; and till the age of six they are chambered within. At about ten years of age the two under tushes appear much worn, which serves for that age. After that they grow out in length, and become bare of flesh, because the gum shrinks and retires. It is worthy of remark, that the mare has but thirty-six teeth, as the tushes are commonly wanting in that animal.

It is sometimes said, that a horse is not capable of any great fatigue till his tushes have cut the skin.

The natural diseases of the Horse are few; but from ill usage or neglect many are brought on which often prove fatal. His diseases are different in different countries. A consumption of the ethmoid bones of the nose, called the *glanders*, is with us the most infectious and fatal. The eyes are subject to many defects, some of which are difficult to be known. In a sound eye, the cornea ought to be clear, transparent, and display two or three spots, of the colour of soot, above the pupil; if it appears double, or of a bad colour, the eye is not good: a small, long, and straight pupil, encompassed with a white circle, or when it is of a bluish-green colour, denotes that the eye is certainly bad.

In all ages and in all seasons, the stomachs of horses contain a prodigious number of worms. They are also found in the stomach of the ass; and yet neither of these animals is incommoded thereby. For this reason, worms should not be considered as an accidental complaint, caused by bad digestion and green food, but rather as a common

effect depending upon the nourishment and digestion of those animals.

Attached to the coats of the stomach and rectum are found what the country people call bots, which are the larvæ or grubs of a species of gadfly. The parent insect deposits her eggs on the hairs of some part of the chest which the horse can reach with his tongue; and in the animal licking himself, they are conveyed into the stomach or intestines, where they are hatched, and become bots. When these arrive at their full growth, they loose their hold, and passing through the body, fall to the ground, where they undergo their final change into winged insects.

Horses, like most animals covered with hair, shed their coats once a year, usually in the spring, though sometimes in autumn: as they are weaker at that time than at any other, they should be carefully treated, and be more plentifully fed. There are also horses which shed their hoofs; this usually happens in humid marshy countries, such as Holland.

It has been remarked, that studs situated in dry and light countries produce active, swift, and vigorous horses, with nervous legs and strong hoofs; while those which are bred in damp places, have generally large heavy heads, thick legs, soft hoofs, and flat feet.

The horse sleeps much less than man, for when he is in health he does not rest more than two or three hours together; he then gets up to eat. When he has been much fatigued he lies down a second time, after having eaten; but in the whole he does not sleep more than three or four hours in the twenty-four. There are even some horses which never lie down, but sleep standing; and this is sometimes the case even with those that do lie down.

It is a curious natural fact, that the horse has a singular property of breathing through the nostril only, and not through the mouth; for, in the severest exercise the mouth is never seen open, unless the lower jaw be brought

down violently by the force of the bit. This may account for the great dilatation of the nostrils after hard running. It is also worthy of remark, that the horse eats *hemlock* without injury.

There is a prevalent notion, that the flesh of the Horse is bitter, and unpalatable to the taste. This, however, is not true. It is eaten in the various countries of Asia; and the Calmuc Tartars are so partial to it, that they seldom eat any other kind of flesh.

Many persons are prejudiced in favour of or against certain colours of horses, and the marks on different parts of their bodies.

The Spaniards never breed from horses that have white legs or noses, choosing only a star in the forehead: they, however, prefer those which have not a single spot, as much as the French do those with particular marks. But these prejudices are perhaps equally ill-founded, since there are exceedingly good horses with all kinds of marks, or entirely of one colour: and we cannot pass over without noticing the absurd and injurious practice adopted by some common farriers, of fitting the shoe to the hoof in a hot state, for the purpose of burning a socket for its reception; it cannot be too strongly reprobated.

Lord Pembroke, with great justice, says, "the utmost severity ought to be inflicted on all those who clap the shoes on hot. This unpardonable laziness of farriers, in making feet thus fit shoes, instead of shoes fitting feet, dries up the hoofs and utterly destroys them."

But notwithstanding the high qualities which have been here recorded of those noble animals, it would be injustice to say that they are entirely without faults: some of them are vicious and bad-tempered, and must be approached with caution in the stable, and managed with great care upon the road; and we shall conclude this account with the following anecdote, in illustration of this fact: —

A nobleman, in the early part of the reign of Louis XV.,

having a very vicious horse, which none of the grooms or servants would ride, — several of them having been thrown, and one killed, — asked leave of his majesty to have him turned loose into the menagerie, against one of the largest lions. The king readily consented, and the animal on a certain day was conducted thither. Soon after the arrival of the horse, the door of the den was drawn up, and the lion, with great state and majesty, marched slowly to the mouth of it, when seeing his antagonist, he set up a tremendous roar. The horse immediately startled and fell back; his ears were erected, his mane was raised, his eyes sparkled, and something like a general convulsion seemed to agitate his whole frame. After the first emotions of fear had subsided, the horse retired to a corner of the menagerie, where, having directed his heels towards the lion, and having reared his head over his left shoulder, he watched with extreme eagerness the motions of his enemy. The lion, who presently quitted the den, sidled about for more than a minute, as if meditating the mode of attack, when, having sufficiently prepared himself for the combat, he made a sudden spring at the horse, which defended itself by striking his adversary a most violent blow on the chest.

The lion instantly retreated, groaned, and seemed for several minutes inclined to give up the contest; when, recovering from the painful effects of the blow, he returned again to the charge with unabated violence: the mode of preparation for this second attack was the same as the first. He sidled from one side of the menagerie to the other for a considerable time, seeking a favourable opportunity to seize his prey; during all which time the horse still preserved the same posture, and still kept his head erect and turned over his shoulder. The lion at length gave a second spring with all the strength and velocity he could exercise, when the horse caught him with his hoof on the under jaw, which he fractured.

Having sustained a second and more severe repulse than

the former, the lion retreated to his den as well as he was able, apparently in the greatest agony, moaning all the way in a most lamentable manner. The horse was soon obliged to be shot, as no one ever dared to approach the ground where he was kept.

THE ARABIAN.

Of all the countries in the world where the horse runs wild, Arabia produces the most beautiful breed — the most generous, swift, and persevering. They are found, though not in great numbers, in the deserts of that country; and the natives use every stratagem to take them. Although they are active and beautiful, yet they are not so large as those bred up tame: they are of a brown colour, their mane and tail very short, and the hair black and tufted: their swiftness is incredible; the attempt to pursue them in the usual manner of the chase, with dogs, would be entirely fruitless. Such is the rapidity of their flight, that they are instantly out of view, and the dogs themselves give up the vain pursuit. The only method, therefore, of taking them is by traps hidden in the sand, which entangling their feet, the hunter at length comes up, and either kills them, or carries them home alive. If the horse be young, he is considered among the Arabians as a very great delicacy, and they feast upon him while any part is found remaining; but if from his shape or vigour he promises to be serviceable in his more noble capacity, they take the usual methods of taming him by fatigue and hunger, and he soon becomes a useful domestic animal.

The most general manner of trying their swiftness is by hunting the ostrich. The horse is the only animal whose speed is comparable to that of this creature, which is found on the sandy plains with which those countries abound. The instant the ostrich perceives itself aimed at, it makes to the

Pl. 1

R. Sands. fc

ARABIAN.

R. Sands. fc

RACER.

London, Published April 1808, by ... Union Place, Islington, Surrey.

mountains, while the horseman pursues with all the swiftness possible, and endeavours to cut off its retreat. The chase then continues along the plain, while the ostrich makes use of both legs and wings to assist its motion. However, a horse of the first speed is able to outrun it, so that the poor animal is then obliged to have recourse to art to elude the hunter, by frequently turning: at length, finding all escape hopeless, it hides its head wherever it can, and suffers itself tamely to be taken. If the horse, in a trial of this kind, shews great speed, and is not readily tired, his price becomes proportionably great: there are some horses valued at a thousand ducats.

But the horses thus caught, or trained in this manner, are at present very few: the value of Arabian horses all over the world has, in a great measure, thinned the deserts of the wild breed, and there are very few to be found in those countries except such as are tame.

The Arabian breed has been diffused into Barbary as well as Egypt, and into Persia also: those from the former country are usually denominated "Barbs."

Let the Arabian be ever so poor, he has horses; they usually ride on the mares, experience having taught that they bear fatigue, hunger, and thirst, better than horses: they also are less vicious, more gentle, and will remain left to themselves, in great numbers, for days together, without doing the least harm to each other. The Turks, on the contrary, do not like mares, and the Arabians sell them the horses which they do not keep for stallions.

The Arabs have no houses, but constantly live in tents, which serve them also for stables; so that the husband, the wife, and the children, lie promiscuously with the mare and foal: the little children are often seen upon the body or the neck of the mare, while these continue inoffensive and harmless, permitting them thus to play with and caress them without any injury.

The Arabians never beat their horses; they treat them

gently; they speak to them, and seem to hold a discourse; they use them as friends; they never attempt to increase their speed by the whip, nor spur them, but in cases of necessity. However, when this happens, they set off with amazing swiftness; they leap over obstacles with as much agility as a buck; and if the rider happens to fall, they are so manageable that they stand still in the midst of their most rapid career.

The Arabian horses are of a middle size, easy in their motions, and rather inclined to leanness than fat. They are regularly dressed every morning and evening, and with such care that the smallest roughness is not left upon their skins. They wash the legs, the mane, and the tail; the two latter they never cut, and very seldom comb, lest they should thin the hair. They give them nothing to eat during the day: they only give them to drink once or twice; and at sunset they hang a bag to their heads, in which there is about half a bushel of clean barley. They continue eating the whole night, and the bag is again taken away the next morning. They are turned out to pasture in the beginning of March, when the grass is pretty high. When the spring is past, they take them again from pasture, and they get neither grass nor hay during the rest of the year; barley is their only food, except now and then a little straw. The mane of the foal is always clipped when about a year or eighteen months old, in order to make it stronger and thicker. They begin to break them at two years old, or two years and a half at farthest; they never saddle or bridle them till at that age, and then they are always kept ready saddled at the door of the tent, from morning till sunset, in order to be prepared against any surprise. They at present seem sensible of the great advantage their horses are to the country; there is a law, therefore, that prohibits the exportation of the mares; and such stallions as are brought into England are generally purchased on the eastern shores of Africa, and come round to us by the Cape of Good Hope.

The Arabs preserve the pedigree of their horses with great care, and for several ages back.* They distinguish the races by different names, and divide them into three classes. The first is that of the nobles, the ancient breed, and unadulterated on either side; the second is that of the horses of the ancient race, but adulterated; and the third is that of the common and inferior kind: the last they sell at a low price; but those of the first class, and even of the second, amongst which are found horses of equal value to the former, are sold extremely

* Of this we have a striking instance in Pennant's Zoology, which contains the following attested paper: —

(Taken before Abdorraman, Kadi of Acca.)

The occasion of this present writing or instrument is, that at Acca, in the house of Bedi, legal established judge, appeared in court Thomas Usgate, the English consul, and with him Sheikh Morad Ebn al Hajj Abdollah, sheikh of the country of Safad; and the said consul desired from the aforesaid sheikh proof of the race of the gray horse which he bought of him, and he affirmed to be Monaki Shaduhi (the term of their noble race of horses); but he was not satisfied with this, but desired the testimony of the Arabs who bred the horse, and knew how he came to Sheikh Morad; whereupon there appeared certain Arabs of repute, whose names are under mentioned, who testified and declared, that the gray horse which the consul formerly bought of Sheikh Morad is Monaki Shaduhi, of the pure race of horses, purer than milk; and that the beginning of the affair was, that Sheikh Saleh, sheikh of Alsabal, bought him of the Arabs of the tribe of al Mahommadat, and Sheikh Saleh sold him to Sheikh Morad Ebn al Hajj Abdollah, sheikh of Safad, and Sheikh Morad sold him to the consul aforesaid: when these matters appeared to us, and the contents were known, the said gentleman desired a certificate thereof, and testimony of the witnesses; whereupon we wrote him this certificate, for him to keep as a proof thereof. Dated Friday, 28th of the latter Rabi, in the year 1135.

Witnesses.

Sheikh Jumat al Faliban, of the Arabs of al Mahommadat.
Ali Ebn Taleb al Kaabi.
Ibrahim, his brother.
Mohammed al Adhra, Sheikh Alfarifat.
Khamis al Kaabi.

dear. They know, by long experience, the race of a horse by his appearance; they can tell the name, the surname, the colour, and the marks properly belonging to each. When the mare has produced her foal, witnesses are called, and an attestation signed, in which are described the marks of the foal, and the day noted when it was brought forth. These attestations increase the value of the horse, and are given to the person who buys him. The most ordinary mare of this race sells for five hundred crowns; there are many that sell for a thousand, and some of the very finest kinds for fourteen or fifteen hundred pounds.

In 1787, Captain Rattray, of the Phœnix Indiaman, brought over a beautiful Arabian stallion of a gray colour, the price of which, with the expense of the passage, amounted to the sum of fifteen hundred and ten pounds.

THE RACER

Is descended, some from Arabians, and others from Barbs; but principally the former. Races and courses were very early a part of the British sports, and it is natural to suppose that on this account endeavours would be made to improve the breeds of the native horses. In the reign of Henry IV. public ordinances were made favourable to the improvement of the breeding of horses. The courses of those times were, however, probably little more than ordinary trials of speed between the indigenæ, or the slightly improved breeds; and it was not until the time of Henry VII. and VIII. that the true Arabian horses were imported. During those reigns, stallions from Arabia, Barbary, and Persia, were procured; and their progeny were regularly trained to the course.

In the reign of Queen Elizabeth, races appear to have been very much in vogue, and to have been carried to such an excess as to injure the fortunes of many of the nobility.

The famous George, Earl of Cumberland, is recorded to have wasted more of his estate than any of his ancestors, and chiefly by his extreme love for horse-races, tiltings, and other expensive diversions. In the following reign particular places were allotted for the sport: Croydon in Surrey, and Garterley in Yorkshire, were celebrated courses. Camden also says, that in 1607 there were races at York; and the prize was a little golden bell. And from these periods we trace the gradual cultivation of the English race-horse, which has at length produced a breed unrivalled throughout the world for symmetry of form, swiftness of progression, and durability under exertion. The accounts on record of the feats of some of our horses on the turf are truly astonishing.

An ordinary racer is known to go at the rate of a mile in two minutes. Bay Multon ran at York four miles in seven minutes and forty-three seconds; and there was one instance in the famous Childers of still greater rapidity. He has frequently been known to move above eighty-two feet and a half in a second, or almost a mile in a minute; and he has run round the course of Newmarket, which is very little less than four miles, in six minutes and forty seconds. He started repeatedly at Newmarket against the best horses, and was never beaten.

Mr. Thornhill, a postmaster of Stilton, wagered that he would ride three times the distance from Stilton to London, that is, 215 English miles, within fifteen hours. In undertaking the performance of which, he set out from Stilton on the morning of the 29th of April, 1745, and arrived in London in three hours and fifty-one minutes, having taken a relay of eight different horses on the road: he immediately set out again from London, and got back to Stilton in three hours and fifty-two minutes, having changed horses but six times; for the third space he set off again, and with seven of the same horses he completed it in three hours and forty-nine minutes; going over the whole space

of 215 miles in eleven hours and thirty-two minutes, — an example of swiftness that possibly is not to be equalled in ancient history.

Eclipse was allowed to be the fleetest horse that ever ran in England since the time of Childers.

Highflyer was accounted the best horse of his time in England. The sums he won and received amounted to near 9,000*l.*, although he never started after five years' old. He was never beaten, nor ever paid a forfeit.

Matchem, a horse belonging to the late W. Fenwick, Esq., of Bywell, besides being a capital racer, was remarkable for being the quietest stallion that ever was known; to which, perhaps, may be attributed his great age, being in his thirty-third year when he died.

Shark won, besides a cup value 120 guineas, and eleven hogsheads of claret, the astonishing sum of 15,507 guineas, in plates, matches, and forfeits.

On the 25th March, 1799, a match for 3,000 guineas was run at Newmarket by Sir H. Vane Tempest's Hambletonian and Mr. Cookson's Diamond, and won by the former. It is supposed that wagers to the amount of nearly two hundred thousand pounds were betted on the event of this severe race.

A race-horse, named True-blue, was in the year 1794 taken over to India. He frequently ran there against the most celebrated Arabians; and, to the honour of this country, never was beaten.

In contending to obtain a superiority of speed over his antagonist, the race-horse is frequently as ardent in his exertions as his rider. The late Mr. Holcroft, in his *Memoirs*, gives a particular instance of this contention. He says: "When I had been about a year and a half at Newmarket, Captain Vernon matched a horse, named Forrester, against Elephant, a horse belonging to Sir Jennison Shaftoe, whom I saw ride this famous match; I think it was a four-mile heat over the straight course; and the abilities of Forrester

were such, that he passed the flat, and ascended the hill as far as the distant post, nose to nose with Elephant. Between this and the chair, Elephant, in consequence of hard whipping, got some little way before him, while Forrester exerted every possible power to recover at least his lost equality; till, finding all his efforts ineffectual, he made one sudden spring, and caught Elephant by the under jaw, which he griped so violently as to hold him back; nor was it without the utmost difficulty that he could be forced to quit his hold. Poor Forrester! he lost, but he lost most honourably."

Of the temperaments and habits of blood-horses there are great varieties, and those very strongly contrasted. The majority of them are playful, but their gambols are dangerous to the timid and unskilful. They are all easily and suddenly alarmed, when any thing they do not understand forcibly catches their attention, and they are then to be feared by the bad horseman, and carefully guarded against by the good, as serious accidents have happened to the very best: but, besides their general disposition to playfulness, there is a great propensity in them to become what the jockeys call vicious. High-bred, hot in blood, exercised, fed, and dressed, so as to bring that heat to perfection, their tender skins at all times subject to a sharp curry-comb, hard brushing, and, when they take sweats, to scraping with wooden instruments,—it cannot be otherwise than that they are frequently and exceedingly irritated. Intending to make themselves felt and feared, they will watch their opportunity to bite, stamp, or kick; this applies to those that are vicious. A stable-boy, after sweating a gray horse belonging to Lord March, with whom he lived, while he was either scraping or dressing him, was seized by the shoulder, lifted from the ground, and carried two or three hundred yards before the horse loosened his hold. Great attention is bestowed to racers both in the stable and when they are taken out for exercise. It is usual for all the boys in the stable to rise at the same hour, from half-past two in the

morning in spring, to between four and five in the depth of winter. The horses hear them, when they awaken each other, and neigh, to denote their eagerness to be fed. Being dressed, the boy begins with carefully cleaning out the manger, and giving a feed of oats, which he is obliged no less carefully to sift. He then proceeds to dress the litter; that is, to shake the bed on which the horse has been lying, remove whatever is wet or unclean, and keep the remaining straw in the stable for another time. The whole stables are then thoroughly swept, the few places for fresh air are kept open, the great heat of the stables gradually cooled; and the horse, having ended his first feed, is roughly cleaned and dressed. In about half an hour after they begin, or a little better, the horses have been rubbed down and re-clothed, saddled, each turned in his stall, then bridled, mounted, and the whole string goes out to morning exercise; each boy knows his place, and one usually takes the lead. Except by accident, the race-horse never trots. He must either walk or gallop; and in exercise, even when it is the hardest, the gallop begins slowly and gradually, and increases till the horse is nearly at full speed. When he has galloped about half a mile, the boy begins to push him forward without relaxation for another half mile. This is at the period when the horses are in full exercise, to which they come by degrees. The boy that can best regulate these degrees among those of light weight, is generally chosen to lead the gallop,—that is, he goes first out of the stable, and first returns.

In the time of long exercise, this is the first brushing gallop. A brushing gallop signifies that the horses are nearly at full speed before it is over, and it is commonly made at last rather up hill. Having all pulled up, the horses stand some two or three minutes, and recover their wind; they then leisurely descend the hill, and take a long walk; after which they are brought to water. But in this, as in every thing else (at least as soon as long exercise

begins) every thing to them is measured. The boy counts the number of times the horse swallows when he drinks, and allows him to take no more gulps than the groom orders; the fewest in the hardest exercise, and one more or less than another, according to the judgment of the groom. After watering, a gentle gallop is taken, and after that another walk of considerable length; to which succeeds the second and last brushing gallop, which is by far the most severe. When it is over, another pause, thoroughly to recover their wind, is allowed them; their last walk is begun, the limits of which are prescribed; and it ends in directing their ride homewards.

The morning's exercise often extends to four hours, and the evening's to much about the same. Being once in the stable, each lad begins his labour. He leads the horse into his stall, ties him up, rubs down his legs with straw, takes off his saddle and body-clothes, curries him carefully, then with both curry-comb and brush, never leaves him till he has thoroughly cleaned his skin, so that neither spot nor wet, nor any appearance of neglect, may be seen about him. The horse is then re-clothed, and suffered to repose for some time, which is first employed in gratifying his hunger, and recovering from his weariness. All this is performed, and the stables are once more shut up, about nine o'clock.

It would be deviating from the plan of this work, and indeed difficult, to attempt a detail of the various species of gambling which are practised upon the race-course; but it may not be considered irrelevant, if we here again quote the words of the late Mr. Holcroft, as it exposes one of those artifices. He says: "In addition to matches, plates, and other modes of adventure, that of a sweepstakes had come into vogue; and the opportunity it gave to deep calculators to secure themselves from loss by hedging their bets, greatly multiplied the bettors, and gave uncommon animation to the sweepstakes made. In one of these, Captain Vernon had entered a colt or filly; and as the prize to be obtained

was great, the whole stable was on the alert. It was prophesied that the race would be a severe one; for, though the horses had none of them run before, they were all of the highest breed; that is, their sires and dams were in the first lists of fame.

"As was foreseen, the contest was indeed a severe one; for it could not be decided, it was a dead heat; but our colt was by no means among the first. Yet so adroit was Captain Vernon in hedging his bets, that if one of the two colts that made it a dead heat had beaten, he would, on that occasion, have won ten thousand pounds: as it was, he lost nothing, nor would in any case have lost any thing. In the language of the turf, he stood ten thousand pounds to nothing!"

THE HUNTER.

This favourite and valuable breed is a happy combination of the speed of the Arabian with the durability of the species which have become naturalised in this country. More extended in form, but framed on the same principles, he is able to carry a considerable weight through heavy grounds with a swiftness equalled only by the animal he pursues, and with a perseverance astonishing to the natives of every other country.

The antiquity of the chase, and the history of that "mighty hunter before the Lord," Nimrod, are so well known, that any reference or quotation would be superfluous. Modern English hunting is, like horse-racing, a peculiar system; indeed they seem to have taken rise together, at some period about, or immediately subsequent to, our national dissensions, or wars of the White and Red Rose; previously to which, our hunting, like that still prevalent on the continent, was of a military nature, and often consisted of the pursuit of dangerous wild animals, which were then to be

J. Le Keux fc.

HUNTER.

F. Sands fc

COACH-HORSE.

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found in this country, as the wolf and boar. The object of the present system of hunting is simply a pursuit or race between the hunting horse and the hounds, and the animal of chase, under certain laws and regulations.

The education of the hunter consists chiefly in his being taught to leap the bar standing, since generally all horses will take a flying leap, in some form or other. The practice of the leaping-bar furzed around is well known; but some grooms are too harsh with young horses, whence many of irritable tempers can never be made afterwards stanch leapers.

In order that the hunter may behave well in the field, he should be treated with great care and indulgence in the stable. He should have as much rest as circumstances will allow, be kept well supplied with good food and clean litter, having fresh water by him, should be often dressed, and permitted sleep as he pleases.

Irregularity or inequality of shape in these animals is always a token of weakness. The inequalities in shape which indicate a horse to be improper for the chase, are having a large head and small neck, a large leg and small foot, and the like.

The whole frame of a horse which is designed to be trained for a hunter, ought to be well knit together, as the jockeys express it: the ears should be small, open, and pricked; or if they be somewhat long, yet if they stand upright and hold like those of a fox, it is a sign of toughness and hardiness. The forehead should be long and broad, not flat; the eyes full, large, and bright; the nostrils not only large, but looking red and fresh within, for an open and fresh nostril is always considered a sign of good wind. The mouth should be large, deep in the weeks, and hairy; the windpipe capacious and appear straight when the animal bridles his head, since if it bend like a bow, it is not formed for a free passage of the breath. The head should be set so on the neck that a space may be felt between the

latter part and the chin. The crest ought to be strong, and well risen; the neck straight and firm; the breast strong and broad; the ribs round like a barrel; the fillets large; the buttocks rather oval than broad; the legs clean, flat, and straight; and finally, the tail and mane should be long and thin, not short and bushy. When a hunter has been thus chosen, and has been taught to obey the signals of the bridle and hand, has gained a true temper of mouth, and has learned to stop, make forward, and turn readily,—if of a proper age, he is fit for the field. It is a rule with stanch sportsmen, that no horse should be used for hunting till he is five years old, although some will take them to the field at four; but at this age the horse has not attained his true strength and courage, and will not only fail on a tough trial, but will be subject to sprains and accidents.

When the hunter is five years old, he may be put to grass from the middle of May till Bartholomew-tide: he should then be taken up and put into the stable, while his coat is yet smooth and sleek.

It is a general rule with many, not to clothe and stable up their horses till two or three days after they are taken from grass; and others who put them in the stable after the first night, yet will not dress and clothe them till three or four days afterwards: but all this, except the keeping the horse one day in a large and cool place, is needless caution.

It is in many places a general practice among grooms to give their hunters wheat-straw as soon as they take them up from grass; yet the change is so violent, and the nature of the straw so heating and drying, that there is great reason to fear its astringency must prove prejudicial; indeed more so than is at first perceived. When the horse has been properly shod, and the shoes have had time to settle to his feet, he may be ridden abroad, and treated in the following manner:—the groom ought to visit him early in the morning, at five o'clock in the long days, and at six in the

short ones; he must then clean out the stable, and feel the horse's neck, flank, and belly, to ascertain the state of his health. If the flank feels soft and flabby, there is a necessity for good diet to harden it, otherwise any great exercise will occasion swellings and goutiness in the heels. After this examination, a handful or two of good old oats, well sifted, should be given to him; this will create a greater inclination to drink, and will also make the water rest better on his stomach than if he drank fasting. After this, he is to be tied up and dressed; and if while this is being done, he opens his mouth as if he would bite, or attempts to kick the person, it is a proof that the teeth of the curry-comb are too sharp, and must be filed blunter. If after this he continues the same tricks, it is through wantonness; and he should be corrected for it with the whip. The intent of currying being only to raise the dust, this is to be brushed off with a horse-tail nailed to a handle, or any other light brush. He is then to be rubbed down with the brush, and dusted a second time; after which he should be rubbed down with a wet band, and all the loose hairs should be picked off. When this is done, and he is wiped dry as at first, a large saddle-cloth is to be placed on him, reaching down to the spurring place; then the saddle is to be put on, and a cloth thrown over it, that he may not take cold; then rub down his legs, and pick his feet with a picker, and let the mane and tail be combed with a wet mane-comb. Lastly, it is customary to spurt some beer into his mouth just before leading him out of the stable. He should then be mounted, and walked a mile at least to some running water, and there watered; but he must be suffered to take only about half his water at one drinking.

It is the custom of many to gallop the horse at a violent rate as soon as he comes out of the water: but this is extremely wrong, for many reasons; among others, it endangers the breaking a horse's wind more than any other practice. The best way is to walk him a little after he is

out of the water, then put him to a gentle gallop for a little while, and after this bring him to the water again. This should be done three or four times, till he will not drink any more. If there is a hilly spot near the watering-place, it is always well to ride up to it; if otherwise, any place is to be chosen where there is free air and sun.

On returning from airing, he is to be led to his stall and tied up, and again carefully rubbed down; after which he should be covered with a linen cloth next his body, and a canvass one over that, made to fit him, and reaching down to his legs. Over this covering there should be put a body-cloth, of six or eight straps, which clothing will be sufficient while the weather is not very sharp; but in severe seasons, when the hair begins to rise and start in the uncovered parts, a woollen cloth is to be added, and this will always prove fully sufficient. An hour or more after the horse returns from his airing, he should have a whisp of clean hay and a quarter of well-sifted oats given to him; he should have enough, but not sufficient to cloy him. After the feeding in the morning is over, the stable is to be shut up, leaving him only a little hay on his litter. At one o'clock he is again to be rubbed down, and left till the time of the evening watering, which is four o'clock in the summer, and three in the winter. When he has been watered, he must be kept out an hour or two, or more if necessary, and then taken home and rubbed, as after the morning watering. He is then to have a feed of corn at six o'clock, and another at nine at night; and after being cleaned, and his litter put in order, and hay enough provided for the night, he is to be left till the morning. This is the direction for one day, and in this manner he is to be treated for a fortnight, at the end of which time he will be fit to be put to moderate hunting.

Some great sportsmen are for keeping their horses out at grass all the buck-hunting season, never taking them up into the stable at all, but allowing them in the field as much oats as they will eat. The horse may be thus ridden three

days in the week for the whole season, and never injured by it.

We have entered thus fully into a detail of the care requisite for, and the trouble which is usually bestowed upon, the hunter; not doubting but it will prove useful to many of our readers, by having given them some general directions with regard to the mode of keeping him; and gratifying to others, by thus drawing a picture which exhibits the Horse in a state of pampered indulgence, dictated by man for his own gratification and service, — a state so dissimilar from that of which we have given a view in our preceding pages, where he is represented as enjoying the extensive range of forests and plains in his native freedom and unrestrained liberty.

Hunting is obviously one of the most severe labours of the horse; yet he joins in and enjoys the chase with all the spirit and ardour of his rider; nor is he unfrequently seen following the hounds, when the misfortune or unskilfulness of the latter has left the disencumbered animal to enjoy uncontrolledly the "glories of the field."

The muscular power of the Horse, when exerted in leaping, is almost incredible; but the following authenticated facts will enable our readers to appreciate his strength. It is recorded, that a horse belonging to a farmer in Deeping Fens made a spring of *seven yards* in length, over a three-barred gate; yet this astonishing leap was exceeded by a horse belonging to a gentleman at Limerick, who leaped *twenty-six* feet in length, clearing at the same time a hedge in the centre, of more than four feet high.

The Irish horses are renowned as leapers, both standing and flying; and this is to be attributed in a great measure to the indefatigable training bestowed upon them, and to the desperation of Hibernian riders, which has often terminated in the ruin of the horse and the fractured bones of the sportsman. Two Irish grooms drinking at a public-house door, one upon his master's hunter, which he had brought

out for exercise,—the other betted that the horse could not clear a neighbouring wall. The height, viewed from the horse's back, was tremendous; nevertheless, full to the brim with Irish mettle and whisky, Patrick offered the leap to his horse standing, who, after a little hesitation, reluctantly refused; on which the irritated rider turning the horse about, and cantering him to a considerable distance, turned him again, and with his riding switch up about the horse's ears, ran him at the wall. The generous horse would not refuse a second time, but made a desperate leap, and, being incapable of overtopping such an altitude, his fore feet struck against the summit; yet the violence of his exertion carrying him over, he grounded on the other side on his head and fore-quarters, both his fore legs being broken in the fall; yet the fellow escaped with only a few contusions. Owing to the absence of his proprietor, the poor animal was kept several days in torture, before he was shot.

As a memento and caution to young men, the following unfortunate fact also merits a place here: Mr. S., an Essex yeoman of considerable property, about twenty-one years of age, and on the point of being married, was riding his hunter over his farm. In stooping to unfasten a five-barred gate, his heel touched the horse's side unintentionally. The obedient hunter mistaking it for a signal to leap the gate, made his leap whilst it was swinging, and his hinder legs becoming entangled, he came down upon his unfortunate master's body, and crushed him instantly to death. It was full an hour before any one arrived, and the noble and generous horse was standing close by his dead master, as if lamenting his fate.

COACH-HORSE.

The coach, chariot, and stage-coach horse, are derived, many of them from Cleveland bays,* further improved by a mixture of blood. Others are bred from a judicious union of blood and bone, made by the breeders in Yorkshire, Lincolnshire, and other midland counties.

This strong, bony, and active kind of horse is now used in our carriages, instead of the old black coach-horse, which is almost universally laid aside. The docked tail, offensive both to humanity and decency, is now rarely to be seen: propriety and good sense have at length prevailed over a custom replete with absurdity; and our horses are permitted to retain a member both useful and ornamental.

In working and managing coach-horses, the same attention to grooming, in all its departments, is required as for saddle-horses. Coach-horses should never be brought into full work until they are five years old: when well fed on hard food, they may be worked at an average of thirty miles a day. In general, they should not be longer than five or six hours in the yoke at a time. Their principal meals should be in the morning and after their work is over for the day, as the action of trotting fast materially impedes digestion.

COMMON CART-HORSE.

This is a sort of coarse-made horse, destined for the service of the cart or plough. He is inferior to the black

* The Cleveland bays owe some of their most valuable properties to crosses with the race-horse: they have been long celebrated as one of the best breeds in the island, but they are said to have degenerated of late. They are reared to a great extent in Yorkshire; the farmers of which county are remarkable for their knowledge in every thing that relates to this species of live stock. In activity and hardiness, these horses perhaps have no superior.

horse both in size and strength; his form is heavy, his motions slow, and his aspect without sprightliness: he is, nevertheless, extremely useful, and is employed in the business of agriculture and other domestic concerns.

In making choice of these horses, what are called slow horses are to be chosen, of a moderate and equal height; for otherwise, when put into a cart, one draws unequally with the other. The draught-horse should be large-bodied and strong-loined, and of such a disposition as to be rather too dull than too brisk. They should have good heads, necks, breasts, and shoulders; but the rest of the shape is of little consequence. Draught-horses should be always kept to one employment. Some put them to the saddle; but it always does them harm, alters their pace, and spoils them for labour.

BLACK CART-HORSE.

No other country has produced a breed of horses equal in size and strength to the larger kind of our draught-horses. The cavalry of England* formerly consisted of this class

* In the campaigns of the late war our cavalry shewed a great superiority, both of strength and activity, over those of our allies, as well as of the French. The enemy was broken through by the impetuous charge of our squadrons; while the German horses, from their great weight and inactive make, were unable to second our efforts, though those troops were actuated by the noblest ardour. Thus our cavalry only supported its ancient glory; for it was eminent in the earliest times,—as our sithed chariots, and the activity and good discipline of our horses, even struck terror into Cæsar's legions; and the Britons, as soon as they became civilised enough to coin, stamped their first money with the figure of the horse.

In the reign of Queen Elizabeth (vide Sir Edward Harwood's Memorial, *Harleian Misc.* iv. 255) the whole kingdom could not supply 2000 horses to form our cavalry; and even in the year 1588, when the nation was in the most imminent danger from the projected Spanish invasion, all the cavalry that could then be furnished amounted only to 3000. The number of British cavalry employed in 1810 amounted to 23,807; of foreign and

R. Sands. fc

COMMON CART HORSE.

J. Le Keux. fc

BLACK CART HORSE.

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of horses; but their inutility being experienced in most situations, others of a lighter and more active kind have been generally substituted, except in a few regiments. In the fens of Lincolnshire, a larger breed of horses is produced than in any other part of this kingdom.

Considerable improvements have, of late years, been made in this kind of horses by Mr. Bakewell, of Dishley, and others; who, by great ingenuity and attention, have acquired such celebrity that they frequently sell stallions of their respective breeds for two hundred guineas.

The form of the black Lincolnshire horse has, by their management, been materially altered: the long fore-end, long back, and long, thick, hairy legs, have been gradually contracted into a short, thick carcass, a short but upright fore-end, and shorter and cleaner legs. But the present system of farming requires horses of less bulk and more activity for the usual agricultural purposes, and such as are better adapted for travelling, and more capable of enduring fatigue; consequently this breed is seldom seen on improved farms.

The black horse bred in the midland counties of England is a noble and useful animal, and furnishes those admirable teams which we see in coal merchants', brewers', and other heavy carts and waggons about London, where the immense weight of the animal's body assists his accompanying strength to move the heaviest loads. There have been instances where a single horse of this kind has drawn for a small space the enormous weight of three tons, half of which is known to be their ordinary draught.

An unparalleled instance of the power of one of these

colonial cavalry, to 3594, exclusively of the horses attached to the artillery and the waggon train: and such is our improvement in the breed of horses, that most of those which are used in our carriages of various kinds might be applied to the same purpose; of these, between twenty and thirty thousand are employed in the metropolis alone.

animals, when assisted by art, was shewn near Croydon some years ago. A bet was made between two gentlemen, that a common horse could draw *thirty-six tons* for six miles along the Surrey Iron Railway; and that he should draw this weight from a dead pull, as well as turn it round the occasional windings of the road. Twelve waggons, loaded with stones, each waggon weighing above three tons, were chained together, and a horse, taken without selection from a timber cart, was yoked into the team. He drew the immense chain of waggons, with apparent ease, a distance of six miles in one hour and forty minutes. Four more loaded waggons were then added to the cavalcade, and about fifty workmen were directed to mount the waggons, which the horse drew without the least distress. After the trial the waggons were taken to the weighing machine, and it appeared that the whole weight was as follows:—

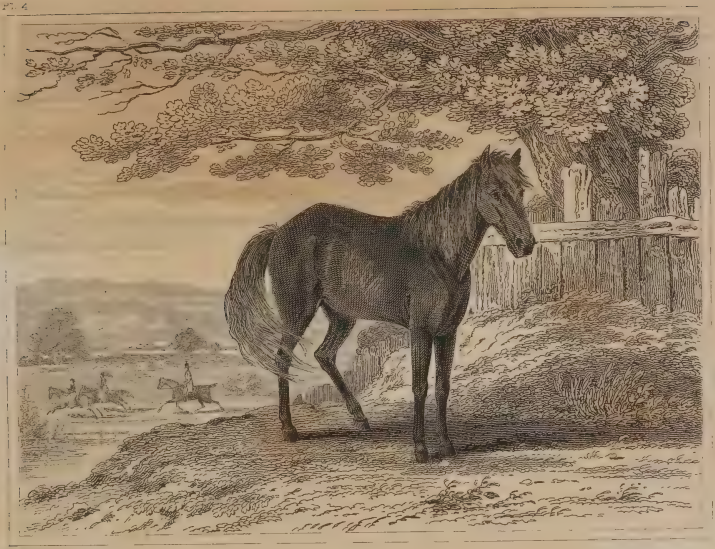
	Tons.	Cwt.	Qrs.
Twelve waggons first linked together weighed -	38	4	2
Four ditto afterwards attached - - -	13	2	0
Supposed weight of fifty labourers - -	4	0	0
Total - -	55	6	2

THE FORESTER.

The New Forest ponies were supposed to be the produce of the Spanish Jennets, driven ashore on the coast of Hampshire in the dispersion of the Invincible Armada in the reign of Elizabeth.

The ponies of the New Forest, Dorsetshire, although private property, run wild in their extensive domain, as if in a state of nature, and are often in the summer season seen feeding like deer, in herds of a score or two. Their colts, when wanted, are either hunted down by horsemen, or caught by stratagem. With few exceptions, these foresters are ill made and ordinary, but useful for almost every

Pl. 4



R. Sands fc.

FORRESTER.

R. Sands fc.

WELCH PONY.

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kind of employment; and they have the quality of being very sure-footed.

Nearly the same remarks may also be applied to the horses of Exmore Forest, in Devonshire. When the general utility of those inferior races of the horse is considered, it may be submitted whether it would not be generally advantageous and individually profitable to improve their form and qualities, by a proper choice of breeding stock, without attempting to increase their height.

WELSH PONY.

The ponies of Wales seem to be original and unmixed. They are much esteemed for the neatness and beauty of their forms, for the nimbleness of their motions; and, above all, for being remarkably sure-footed on the most difficult roads, which renders them extremely valuable in the mountainous tracts to which they originally belong. In point of size and hardiness, they bear a near resemblance to the best of the native breed of the Highlands of Scotland, and other hilly countries in the north of Europe. These animals are too small for the two-horse ploughs now in use; but few horses are equal to them for enduring fatigue on the road. "I well remember," says Cully, "one that I rode for many years, which, to the last, would have gone on a pavement in preference to a softer road."

SHETLAND PONY.

The smaller horses of the Isles and Highlands of Scotland are distinguished from larger breeds by the appellations of shelties and ponies, and in Gaelic of garrons or gearrons. They are reared in great numbers in the Hebrides, where they are found in the greatest purity. Different varieties of the same race are spread over all the Highland district and the Northern Isles. This ancient breed is supposed to

have been introduced into Scotland from Scandinavia, when the Norwegians and Danes first obtained a footing in these parts. "It is precisely the same breed that subsists at present in Norway, the Ferroe Isles, and Iceland; and is totally distinct from any species of the horse on the continent of Europe to the south of the Baltic. In confirmation of this, there is one peculiar variety of the horse in the Highlands that deserves to be noticed: it is there called the eel-backed horse, having always a blackish list that runs along the ridge of the back from the shoulder to the rump, which bears a resemblance to an eel stretched out. This very singular character presents also in many of the horses of Norway, and is known no where else."—(WALKER'S *Hebrides*, vol. ii. p. 158.)

Although the Shetland ponies are exceedingly diminutive in size, they are in other respects excellent. There have been instances of these animals whose height from the foot to the shoulder scarcely exceeded three feet; and a man of ordinary size and strength can lift one of them from the ground with great ease, which the following authenticated fact will demonstrate: —

"A countryman, about five feet ten inches in height, was employed many years ago by the Laird of Coll, to ride post upon a Shetland pony to Glasgow and Edinburgh, the ordinary weight it carried being fourteen stone. This postman being stopped at a toll-bar near Dumbarton, humorously asked whether he should be obliged to pay the toll if he passed on foot, carrying a burden; and being answered in the negative, he took up horse and bags in his arms, and carried them through the bar."

The general form of these ponies is very elegant, and their body is thicker and more compact than that of a blood-horse: they have small legs and large manes; their bones are exceedingly small, as is also their head, and that part of the neck which joins to it: the most common colours are gray, bay, and black. The latter are esteemed the hardiest,

R. Sands fc.

SHETLAND. PONY.

R. Sands fc.

MULE.

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whilst those that are pied seldom prove good. They sometimes live to the age of thirty years and upwards, notwithstanding the little care that is bestowed on them in sheltering them from the cold, which, in the climate of the Shetland islands, is peculiarly severe in the winter: but from the circumstance of their being generally compelled to live out of doors during even the severest months of the year, great numbers are occasionally frozen to death. At this season, when the ground is entirely covered with snow, the wretched animals are compelled to seek a subsistence on the sea-weeds, which once in every twelve hours are left exposed by the tide.

At thirteen hands high the horse becomes a galloway. Galloways have the same traditional origin as the New Forest ponies, namely, from the Spanish jennets, driven ashore on the coast of Scotland at the dispersion of the Invincible Armada, and the common small Scots mares. The late Dr. Anderson possessed one of these galloways when he was a boy. "In elegance of shape," he says, "it could scarcely be excelled; and in disposition it was in the greatest degree gentle and compliant. It moved almost with a wish, and never tired." He rode this little creature for five-and-twenty years, and twice in that time he travelled one hundred and forty miles at a stretch, without stopping, except to bait, and then not for more than an hour at a time; and the pony came in at the last stage with the same cheerfulness and alacrity as it had set out.

The *Horse* genus is named, according to LINNÆUS, *Equus Caballus*: BUFFON, *Le Cheval.*

THE MULE.

These useful and hardy animals are the offspring of the horse and ass, or ass and mare; those produced between the two last are esteemed the best, as the mule is observed to

partake less of the male than of the female parent; yet it is a general remark, that they almost always inherit, in some degree, the obstinacy of the parent ass; though it must be confessed that this vice is heightened by their being injudiciously broke in. Instead of mild usage, which gently corrects the worst qualities, the mule is in this country treated with cruelty from the first, and is so habituated to blows, that it is seldom mounted or loaded without expectation of ill treatment; so that the unhappy animal either prepares to retaliate, or in the terror of bad usage becomes invincibly retrograde. Could we prevail on our countrymen to consider these animals as their useful qualities merit, and pay due attention to breaking them in, they might easily train them for the saddle, for draught, or for burden. Indeed it is a wonder that these creatures are not more propagated in England, as they are so much hardier and stronger than horses, are less subject to diseases, and will live and work to nearly twice the age of a horse. Mules bred in cold countries are more hardy and fit for work than those bred in hot ones; and those which are of a light make are more fit to ride than horses, as to walking and trotting; but they are apt to gallop rough, though not so much so as the short-made ones: they take so much after the mare they are bred from, that they may be procured of any kind, light or strong. The general complaint we make against them is, that they kick, and are stubborn; but this is owing only to neglect in the breeding them, for they are as gentle as our horses, in those countries where they are bred with more care. Savoy produces very large mules, but the finest are bred in Spain. They are chiefly used in countries where there are rocky and stony roads, as about the Alps and Pyrenees, &c. Great numbers of them are kept in these places; they are usually black, and are strong, well made, and large, being mostly bred out of fine Spanish mares. They are sometimes fifteen or sixteen hands high; and a good one of this kind is worth fifty or sixty pounds. No

creature is so proper for carrying large burdens, or more sure-footed. They are much stronger for draught than our horses, often as thick-set as our dray-horses, and will travel for several months together with six or eight hundred weight on their backs.

The mule far excels the horse for travelling in a mountainous country, the former being able to tread securely where the latter can hardly stand. Their manner of going down the precipices of the Alps, the Andes, &c. is very extraordinary. In these passages, on one side are steep eminences, and on the other frightful abysses; and as they generally follow the direction of the mountain, the road, instead of lying on a level, forms at every little distance deep declivities of several hundred yards downward. These can be descended only by mules; and these animals seem sensible of the danger, and the caution that is to be used in such descents. When they come to the edge of one of these precipices, they stop, without being checked by the rider; and if he inadvertently attempts to spur them on, they continue immoveable, apparently ruminating on the danger that lies before them, and preparing themselves for the encounter. They not only attentively view the road, but tremble and snort at the danger. Having prepared for the descent, they place their fore feet in a posture as if they were stopping themselves; they then put their hind feet together, but a little forward, as if they were going to lie down. In this attitude, having taken as it were a survey of the road, they slide down with the swiftness of a meteor. In the mean time, all that the rider has to do, is to keep himself fast on the saddle without checking the rein, for the least motion is sufficient to disorder the equilibrium of the mule, in which case they both unavoidably perish. But their address in this rapid descent is truly wonderful; for in their swiftest motion, when they seem to have lost all government of themselves, they follow exactly the different windings of the road, as if they had previously settled in

their minds the route they were to follow, and had taken every precaution for their safety. In these journeys, the natives place themselves along the sides of the mountains, and holding by the roots of the trees, animate the beasts with shouts, and encourage them to persevere. Some mules, after being long used to such travelling, acquire a kind of reputation for their safety and skill; and their value rises in proportion to their fame.

The Roman ladies had equipages drawn by mules, as appears from the medals of Julia and Agrippina; and at this day, in Spain, the carriages of the nobility, and even of princes, are usually drawn by them. We are assured that M. de Thou, first president of the parliament, had the fourth coach in France, in 1505, till which time every body rode to court and parliament on mules.

THE ASS.

(*Equus Asinus*, Lin. *L'Ane*, Buff.)

Neglected and abused as asses are in the British islands, they have been held in great esteem in other countries, even from the earliest periods of antiquity. In the sacred writings, and especially in the Old Testament, they are spoken of as in general use throughout all the eastern countries, both for the saddle, and as animals of draught and burden; amongst the Romans, too, they were held in the highest estimation. They appear to have come originally from Arabia, and so to have passed from Arabia into Egypt, from Egypt into Greece, from Greece into Italy, from Italy into France, and from thence into Germany, England, Sweden, &c.; for they become in fact weaker and smaller, in proportion to the coldness of the climate.

This animal, though now so common in all parts of these islands, was entirely lost among us during the reign of Queen Elizabeth; for Hollingshed informs us, that in his time

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J. Le Keux fc

ASS.

J. Le Keux fc.

ZEBRA.

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"our lande did yeeld no asses." Yet we are not to suppose that so useful an animal was unknown here before that period; in fact, mention is made of them as early as the time of King Ethelred, above five hundred years preceding; and again in the reign of Henry III.;—so that it must have been owing to some accident that the race was extinct during that of Elizabeth. We are not certain as to the time it was again introduced; probably in the succeeding reign, when our intercourse with Spain was renewed, in which country this animal was greatly used. But the ass, instead of being improved in its breed by domestication, has, in our islands at least, entirely lost its original elegance of form, and its vivacity. Doomed to a neglect which the race by no means deserves, it has become the slave and companion only of the poor. Thus condemned to the very lowest servitude, it is not only treated with indignity, but oftentimes experiences all the misery of harsh and ill usage. Naturally patient and persevering, it is loaded with enormous burdens, or compelled to drag the heaviest weights.

Their constitution is so hardy, that even in the depth of winter the most wretched hovel is sufficient shelter for them from the cold; and so temperate are they with respect to food, that they can subsist on such vegetables as almost any other animals would refuse to eat. The thistle and plantain, which generally grow in abundance on waste lands and along the sides of roads, afford them a sufficient feast after their day of toil is concluded.

When young, they are sprightly, handsome, light, and even graceful; but they soon lose those qualities, either from age or bad treatment, and become slow, stubborn, and headstrong. The ass is strongly attached to his master, notwithstanding he is usually ill treated; he will scent him at a distance, and distinguish him from any other person. Of all the animals covered with hair, he is the least subject to vermin, which apparently proceeds from the peculiar hardness and dryness of the skin; and for the same reason,

he is less sensible than the horse to the whip, and to the stinging of flies.

The milk of the ass is the lightest of all milks, and is recommended by medical men to persons of delicate stomachs.

The age of the ass is equal to that of the horse, and even in some instances exceeds it. One which died in 1782 had been employed in turning the water-wheel at a deep well in Carisbrooke castle for forty years.

The voice of these animals is called braying; and it is a most harsh and discordant noise. When an ass begins to bray, it often happens that if there are others within hearing they also immediately exert their voices. This habit was, in several instances, a serious inconvenience to our army in Egypt, when much harassed by the siege of Alexandria. Besides camels and horses, there were a great number of asses employed in conveying forage for the subsistence of the troops. During the nights, when the soldiers, wearied by the fatigues of the day, were enjoying the few hours of repose that could be allowed them, some one of these animals would begin to bray, and soon afterwards a serenade of at least a thousand such voices would sound through the whole camp. Vexatious as the noise might be, there was, notwithstanding, something extremely ludicrous in such a concert, in which, occasionally, all the numerous animals around, both birds and beasts, joined their efforts. When the asses were at last conveyed to Rosetta, it was to the great joy of every person belonging to the troops.

By far the largest breed of asses at this time known in the world is in Spain: they are large, strong, elegant, and stately animals, often fifteen hands or more in height. The best of this breed sell there at very high prices, sometimes for as much as a hundred guineas each, and upwards. In other countries of Europe the ass is nearly as much neglected as it is in Great Britain. In Sardinia there is a race of asses that are very little larger than dogs: they seldom exceed

two feet in height, and are in all respects proportionably small.

"With difficulty," says Mr. Anderson, speaking of the asses of Senegal, "did I know this animal, so different did it appear from those of Europe: the hair was fine, and of a bright mouse colour, and the black list that crosses the back and shoulders had a good effect. These were the asses brought by the Moors from the interior parts of the country." The migration of these creatures has been very slow; we see how recent their return is in Great Britain. In Sweden they are even at present a sort of rarity.

The Onager, or wild ass, is not striped like the zebra, and is not by any means so elegant in figure. Wild asses are found in some of the islands of the Archipelago, and particularly in that of Cerigo; there are also many in the deserts of Libya and Numidia. They are of a gray colour, and run so fast that only the horses of Barbary can overtake them in hunting.

The wild ass feeds chiefly on the most saline or bitter plants of the desert, as the kalis, atriplices, chenopodium, &c.; and also prefers the saltest and most brackish water to that which is fresh. Of this the hunters are aware, and usually station themselves near the ponds to which they resort to drink. Their manners greatly resemble those of the wild horse. They assemble in troops, under the conduct of a leader or sentinel, and are extremely shy and vigilant.

Olearius relates, that he was once invited by the King of Persia to an entertainment of fruits and sweetmeats; for which purpose he was conducted to the top of a building formed like a theatre. As soon as the repast was ended, upwards of thirty wild asses were brought into the arena; the king diverted himself for some time by shooting at them both with bullets and arrows, and when some of them were wounded, he permitted the ambassadors and nobles to partake of the sport. The poor animals, tormented with the

pain caused by the arrows sticking in them, and unable to escape or defend themselves from the assaults of their enemies, began biting, kicking, and rolling over each other, till they were all killed, when they were laid before the king, who sent them into the royal kitchen at Ispahan, to be dressed for food; the Persians setting so high a value upon the flesh of them, that they have even a proverb expressive of it. But it does not appear that these thirty-two wild asses were all taken in the forests, and therefore it is probable they had been brought up in large parks for the pleasure of hunting and eating them.

As the skin of the ass is extremely hard and very elastic, it is used for different purposes, such as to make drums, shoes, and thick parchment for pocket-books, which latter is slightly varnished over. It is also of ass's skin that the orientals make their sagri, or, as we call it, shagreen. Probably, too, the bones of asses are harder than those of other animals, since the ancients made their best sounding flutes of them. In proportion to his size, the ass can carry a greater weight than any other animal: he sleeps much less than the horse, and never lies down for that purpose, unless very much tired.

THE ZEBRA.

(*Equus Zebra*, Lin. *Le Zèbre*, Buff.)

There are but three animals of the horse kind, — the horse, which is the most stately and courageous; the ass, which is the most patient and humble; and the zebra, which is the most beautiful, but at the same time the wildest, animal in nature. Nothing can exceed the delicate regularity of this creature's colour, or the lustrous smoothness of its skin; but, on the other hand, nothing can be more timid and more untameable. It is chiefly a native of the southern parts of Africa; and whole herds of them may often be seen feeding

in those extensive plains that lie towards the Cape of Good Hope; but they are to be found in neither Europe, Asia, nor America. Their watchfulness is such, that they will suffer nothing to come near them; and their swiftness so great, that they easily leave every pursuer far behind.

In shape, the zebra resembles the mule more than either the horse or the ass; and in size is rather less than the former, and larger than the latter. Its ears are not so long as those of the ass, nor so small as in the horse kind. Like the ass, its head is large, its back straight, its legs finely placed, and its tail tufted at the end; and, like the horse, its skin is smooth and close, and its hind quarters round and fleshy. But its greatest beauty lies in the amazing regularity and elegance of its colours. In the male they are white and brown; in the female, white and black. These colours are arranged in alternate stripes over the whole body, and with such exactness and symmetry, that one would think Nature had employed rule and compass to paint them. These stripes, which, like so many ribands, are laid all over its body, are narrow, parallel to, and exactly separated from, each other. It is not with the zebra as in other parti-coloured animals, where the tints are blended into each other; for every stripe is perfectly distinct, and preserves its colour over the body or limb. In this manner are the head, the body, the thighs, the legs, and even the tail and the ears, beautifully streaked; so that at a little distance one would be apt to suppose that the animal was dressed out by art, and not thus admirably adorned by nature.

In the male zebra the head is striped with fine bands of black and white, which unite, as it were, on the forehead. The ears are variegated with a white and dusky brown. The neck has broad stripes of the same dark brown running round it, leaving narrow white stripes between. The body is striped also across the back with broad bands, leaving narrower spaces of white between them, and ending in points at the sides of the belly, which is white, except a black line pectinated on

each side, reaching from between the fore legs along the middle of the belly, two-thirds of its length. There is a line of separation between the trunk of the body and the hinder quarters, on each side; behind which, on the rump, is a plait of narrow stripes, joined together by a stripe down the middle, to the end of the tail. The colours are different in the female; and in none do the stripes seem entirely to agree in form; but in all they are equally distinct, the hair equally smooth and fine,—the white shining and unmixed, and the black or brown thick and lustrous.

Such is the beauty of this creature, that it seems by nature fitted to satisfy the pride and pleasure of man, and formed to be taken into his service. Hitherto, however, it appears to have disdained servitude, since neither force nor kindness has been able to deprive it of its native independence and ferocity. Yet this wildness might, perhaps, in time be surmounted; and, it is probable, the horse and the ass, when first taken from the forest, were equally obstinate, fierce, and unmanageable. Buffon informs us, that the zebra from which he took his description could never be entirely mastered, notwithstanding all the efforts which were tried to tame it. They continued, indeed, to mount it, but with such precautions as evidently shewed its fierceness; for two men were obliged to hold the reins, while the third ventured upon its back; and even then it attempted to kick whenever it perceived any person approaching.

The zebra, as has been said, is chiefly a native of the Cape of Good Hope. It is also found in the kingdom of Angola, and, as we are assured by Lopez, in several provinces of Barbary. In those boundless forests it has nothing to restrain its liberty: it is too shy to be caught in traps, and is seldom taken alive. It would seem, therefore, that none of them have ever been brought to Europe that were caught sufficiently young to be untinctured by their original state of wildness. The Portuguese, indeed, pretend that they have been able to tame them, and that they have sent four from Africa to Lisbon, which

were so far subdued as to draw the king's coach. They add, that the person who sent them over had the office of notary conferred upon him for his reward, which was to remain to him and his posterity for ever; but we do not find this confirmed by any person who says he saw them. Of those which were sent to Brazil, not one could be tamed: although they were tied up very short, they would permit one man only to approach them; and one of them, which had by some means got loose, killed his groom, by actually biting him to death. It is probable, however, that were the zebra taken up very young, and properly treated, it might be rendered as tame as any other animal; and Merolla, who saw many of them, asserts, that when tamed, which he speaks of as being common enough, they are not less estimable for their swiftness than for their beauty.

In addition to these species may be mentioned the Quagga. This animal, which used to be confounded with the zebra, is now acknowledged to be quite a distinct species. It inhabits the same parts of Africa as the zebra; but is always found in separate herds, never associating with it. It is about the same size as the zebra, but less elegant in its shape and marks, and of a much more docile nature; the Dutch colonists at the Cape being said to tame them, and use them for the draught and saddle. Its general colour is of a ferruginous tinge, with brown stripes. These stripes, however, are much fewer in number than those of the zebra, and much less elegantly disposed, there being seldom any on the haunches, shoulders, and legs; and on the hinder parts they gradually diminish into spots.

OF RUMINATING ANIMALS.

Of all animals, those that chew the cud are the most harmless and the most easily tamed. As they live entirely upon

vegetables, it is neither their interest nor their nature to make war with the rest of the brute creation: content with the pastures where they are placed, they seldom desire to change them, while they are furnished with a proper supply; and fearing nothing from each other, they generally go in herds for their mutual security. While all carnivorous animals seek their food in gloomy solitude, these, on the contrary, range together. The very meanest of them are found to unite in each other's defence. The hare itself is gregarious in those countries where it has no other enemies but the beasts of the forests to guard against.

The food of ruminant animals, as before observed, is entirely of the vegetable kind; and as this is very easily procured, so these animals seem naturally more indolent and less artful than those of the carnivorous kinds; and as their appetites are more simple, their instincts seem to be less capable of variation. The fox and wolf are for ever prowling; their long habits of want give them a degree of sharpness and cunning; their life is a continued scene of stratagem and escape: but the patient ox, or the deer, enjoys the repast that nature has abundantly provided, certain of subsistence, and content with security.

As nature has furnished these animals with an appetite for such coarse and simple nutriment, so has she enlarged the capacity of the intestines, to take in a greater supply. In the carnivorous species, as their food is nourishing and juicy, their stomachs are but small, and their intestines short; but in these whose pasture is coarse, and where much must be accumulated before any quantity of nourishment can be obtained, their stomachs are large and numerous, and their intestines long and muscular. The bowels of a ruminating animal may be considered as an elaboratory furnished with vessels fitted for various transmutations. It requires a long and tedious process before grass can be transmuted into flesh; and for this purpose, nature has, in general, furnished such animals as feed upon herbage with

four stomachs, through which the food successively passes, and undergoes the proper separation.*

Of the four stomachs with which ruminant animals are furnished, the first is called the *paunch*, which receives the food after it has been slightly chewed; the second is called the *honey-comb*, and is properly nothing more than a continuation of the former: these two, which are very capacious, the animal fills as fast as it can, and then lies down to ruminate, which may be properly considered as a kind of vomiting without effort or pain. The two stomachs above mentioned being filled with as much as they can contain, and the grass, which is slightly chewed, beginning to swell from the heat, it dilates the stomachs, and these again contract upon their contents. The aliment, thus squeezed, has but two passages to escape at; one into the third stomach, which is very narrow; and the other back, by the gullet, into the mouth, which is wider. The greatest quantity, therefore, is driven back, through the largest aperture, into the mouth, to be chewed a second time; while a small part, and that only the most liquid, is driven into the third stomach. The food which is driven into the mouth, and chewed a second time, is thus rendered more soft and moist, and becomes at last liquid enough to pass into the conduit that communicates with the third stomach, where it undergoes a still farther comminution. In this stomach, which is called the *manifold*, from the number of its leaves, all which tend to promote digestion, the grass has the appearance of boiled spinage, but is not yet sufficiently reduced to make part the animal's nourishment; for which purpose, it is requisite that it should be submitted to the operation of the fourth

* All quadrupeds that chew the cud have suet instead of the soft fat of other animals; and they have the awkward habit of rising, when in a recumbent posture, upon their hind legs first. A cow, when she rises from the ground, places herself on her fore knees, and then lifts up the whole hinder parts. A horse springs up first on his fore legs, and then rises up his hinder parts. This may be owing to the different conformation of the stomach.

stomach, where it undergoes a complete maceration, and is separated to be turned into chyle.

But in fitting the intestines of these animals for their food, nature has not been less careful in another respect,—in the carnivorous kinds they are thin and lean; but in ruminating animals they are strong, fleshy, and well covered with fat; for nature seems to have taken every precaution to assist their digestion. The stomach is strong and muscular, in order the more readily to act upon its contents; the intestines are lined with fat, the better to preserve their warmth; and they are extended to a much greater length, so as to extract every part of that nourishment which vegetable food so scantily supplies. In this manner are all quadrupeds of the cow, sheep, or the deer kind, seen to ruminate; being thus furnished with four stomachs for macerating their food. These, therefore, may most properly be called the *ruminant kinds;* although there are many others that have this quality in a less observable degree. The rhinoceros, the camel, the horse, the rabbit, the marmotte, and the squirrel, all chew the cud at intervals, although they are not furnished with stomachs like the former. Besides these, there are also numberless other animals that appear to ruminate; not only birds, but fishes and insects. Among birds are the pelican, the stork, the heron, the pigeon, and the turtle, which have the power of disgorging their food to feed their young; and among the fishes are the lobster, the crab, and the *dorado.* The salmon also is said to be of this number; and, if we may believe Ovid, the *scarus* likewise, of which he says,

> At contrà, herbosâ pisces laxantur arenâ,
> Ut *scarus*, epastas *solus* qui ruminat escas.
>
> Of all the fish that graze beneath the flood,
> He only ruminates his former food.

Of insects, the ruminating tribe is still larger, comprising the mole, the cricket, the wasp, the drone, the bee, the grasshopper, and the beetle. All these animals either ac-

tually chew the cud, or seem at least to ruminate. They have the stomach composed of muscular fibres, by means whereof the food is ground up and down, in the same manner as in those which are particularly distinguished by the appellation of *ruminants*. But not these alone; men themselves have been often known to ruminate, and some even with pleasure. The accounts of these calamities, for such we must consider them, incident to our fellow-creatures, are not very pleasant to read; yet we must transcribe a short one, as given to us by Slare in the Philosophical Transactions, as it may in some measure shew the satisfaction which the lower tribes of animals enjoy while they ruminate. The man in question was a citizen of Bristol, of about twenty years of age, and, what seemed more extraordinary still, of a ruminating family, for his father was frequently subject to the same infirmity, or amusement, as he himself perhaps would have called it. This young man usually began to chew his food over again within a quarter of an hour after eating. His ruminating after a full meal generally lasted about an hour and a half; nor could he sleep until this task was performed. The victuals, upon the return, tasted even more pleasantly than at first; and returned as if they had been beaten up in a mortar. If he ate a variety of things, that which he ate first came up again first; and if this return was interrupted for any time, it produced sickness and disorder, nor was he ever well till it returned. Instances of this kind, however, are rare and accidental, and it is happy for mankind that they are so. Of all other animals, we spend the least time in eating: this is one of the great distinctions between us and the brute creation; and eating is a pleasure of so low a kind, that none but such as are nearly allied to the quadruped desire its prolongation.

ANIMALS OF THE OX KIND.

INTRODUCTION.

The surface of the earth, adorned with its verdure, is the inexhaustible and common fund from which man and animals draw their subsistence. Every thing in nature that has life is nourished by that which vegetates; and vegetables, in turn, exist on the spoil of every thing that has lived or vegetated. To live, it is necessary to destroy; and it is only by the destruction of beings that animals can themselves live and multiply. In creating the first individuals of each species of animals and vegetables, God not only gave form to the dust of the earth, but also bestowed on it animation by enclosing in each individual a greater or less quantity of active principles, organs, living molecules, incapable of being destroyed, and common to all organised beings. The molecules pass from body to body, and are equally the causes of life and the continuation of it, and are requisite to the nourishment and growth of each individual. After the dissolution of the body and its reduction to ashes, these organic molecules, over which death has no power, survive, circulate in the universe, pass into other beings, and produce life and nourishment. Every production, every renovation or increase by generation, by nutrition, or by growth, implies a preceding destruction, a conversion of substance, a translation of these organic molecules, which never multiply, but which, always existing in an equal number, render nature always equally alive, and ever equally resplendent with the primitive glory of Him who created it.

Like all other subordinate powers, death attacks only individuals, strikes only the surface, and destroys the form, but can have no power over matter, and can do no harm to nature, which thereby only appears to more advantage. She does not permit him to destroy the species, but leaves indi-

viduals to his power, to shew herself independent both of death and time — to exercise every instant her own power, which is always active — to manifest her plenitude by her fertility — and to make the universe, in producing and renewing its beings, a theatre always filled, and a spectacle always new.

Next to man, animals which live on flesh only are the greatest destroyers; they are both the enemies of nature and the rivals of man. It is only by a careful attention that our flocks and fowls can be sheltered from the wolf, fox, weazel, and birds of prey; and it is only by a continual war that we can preserve our grain, fruits, and even clothing, from the voracity of rats, moths, mites, &c., for insects are among those creatures which appear to do more harm than good. The ox, sheep, and those animals which feed on grass, are not only the best, most useful, and most precious to man, but consume and cost him least. The *Ox*, above all the rest, is the most excellent in this respect; for *he gives as much to the earth as he takes from it, and even enriches the ground on which he lives;* while the horse and the sheep are known, in a course of years, to impoverish the ground. The land where they have fed becomes weedy, and the vegetables coarse and unpalateable; the pasture, on the contrary, where the ox has been bred, acquires a finer, softer surface, and becomes every year more beautiful and even. The reason is, that the horse being furnished with fore-teeth in the upper jaw, which the ox is destitute of, nips the grass closely, and therefore only chooses that which is most delicate and tender; the sheep, also, though with respect to its teeth formed like the ox, bites only the most succulent parts of the herbage: these animals, therefore, leave all the high weeds standing; and while they cut the finer grass closely, suffer the ranker herbage to vegetate and overrun the pasture. But it is otherwise with the ox, as its teeth cannot come so closely to the ground as those of the horse, nor so readily as those of the sheep, which are less,

but it is obliged to feed upon the taller vegetables that offer; therefore it eats them all down, and in time levels the surface of the pasture.

THE OX KIND.

Bos Taurus, LINN. *Le Bœuf*, BUFF.

"The male ox is the BULL, and the female the COW; collectively they are denominated *oxen* or *kine*. The bull and cow inhabit various parts of the world. In most countries, however, they are the mere creatures of soil and climate; the same attention in breeding and rearing that is bestowed on the horse being withheld from them, the natural habits little restrained, or the form improved for the purposes of milking, fattening, or for labour. It is almost exclusively in Great Britain that this race of animals has been improved so as to present breeds for each of these purposes far superior to what are to be found in a state of nature, or in any other country."

The principal varieties of the wild ox are the urus, the Gaur, the bison,* and the buffalo; the first with a long mane, and the two last with a gibbous back. They inhabit the woods in Madagascar, and many other countries of the East; but these species we shall more particularly notice hereafter.

"There are several varieties of the cultivated ox, such as the European, Indian, Zebu, Surat, Abyssinian, Madagascar, Tinian, African, &c. From the European variety have been formed the different breeds cultivated in Great Britain. These are generally distinguished by the length and flexure of their horns, or by the absence of them, by the districts where they are supposed to have originated, by those where they abound or exist in the greatest purity, or by the name

* This animal is called the bonassus by some naturalists; and by others the bubalus.

P. f.

R. Sands fc

BULL.

J. Le Keux. fc

COW.

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of the breeder" (*Loudon*, p. 954); and as the ox is an animal of the greatest importance to the welfare of this country, we shall first treat of it in its domesticated state, particularly in these islands, and of those varieties which are in most esteem; and shall then proceed to describe the wild oxen of the different countries which they inhabit, and the most remarkable foreign species.

Cæsar (the earliest writer who describes this island of Great Britain) speaks of the numbers of our cattle; and adds, that we neglected tillage, but lived on milk and flesh. Strabo takes notice of our abundance of milk, but says that we were ignorant of the art of making cheese. Mela informs us, that the wealth of the Britons consisted in cattle; and in his account of Ireland reports, that such was the richness of the pastures, that the cattle would even burst if they were suffered to feed in them long at a time. This preference of pasturage to tillage was delivered down from our British ancestors to much later times, and continued equally prevalent during the whole period of our feudal government. The chieftain, whose power and safety depended on the promptness of his vassals to execute his commands, found it his interest to encourage those employments that favoured that disposition; while the vassal, who made it his glory to fly at the first call to the standard of his chieftain, naturally preferred that employment which might be transacted by his family with equal success during his absence. Tillage would have required an attendance incompatible with the services he owed his baron; while the former occupation not only gave leisure for those duties, but furnished the hospitable board of his lord with ample provisions, of which the vassal was an equal partaker.

The relics of the larder of the elder Spenser are evident proofs of the plenty of cattle in his days; for after his winter provisions may be supposed to have been mostly consumed, there remained in salt, so late as the month of May, the carcasses of not fewer than 80 beeves,

600 bacons, and 600 sheep. The accounts of the several great feasts in after times afford amazing instances of the quantity of cattle that were consumed in them: this was owing partly to the continued attachment of the people to grazing, partly to the preference that the English have always given to animal food. The number of cattle that appear from the last calculation to have been consumed in our metropolis is a sufficient argument of the vast plenty of these times, particularly when we consider the great advancement of tillage, and the numberless variety of provisions, unknown to our ancestors, that are now introduced into these kingdoms from all parts of the world.*

* That inquisitive and accurate historian, Maitland, furnishes us with the following table of the quantity of cattle that were consumed in London in the year 1725, when the city was far less populous than it is at present; and we shall trace the number up to the latest period.

In the year 1725 the number of beeves consumed was 98,244; calves, 194,760; sheep and lambs, 711,123.

Middleton, in his Agricultural Survey of Middlesex, gives the following comparative statement of the number of cattle and sheep sold annually at the same market, from the year 1750 to 1794.

	Cattle.	Sheep.
1750 to 1758 . .	73,331	623,091
1759 — 1767 . .	83,432	615,328
1768 — 1776 . .	89,362	627,805
1777 — 1785 . .	99,285	687,588
1786 — 1794 . .	108,075	707,456

The number of cattle sold in Smithfield in 1828, according to authenticated statements procured expressly for this work, are said to have been:

Oxen, 141,143; calves, 20,360; sheep and lambs, 1,251,800.

Of the number of pigs consumed in London, it is impossible to form any accurate estimate, as great numbers of those which are sold in Smithfield market are purchased by poor people for the purpose of fattening, and are frequently brought to market again in a few weeks after and resold; and from fortuitous circumstances, some of those pigs are bought and sold four or five times in the same market.

It must also be observed, that, owing to the cultivation of a larger breed, the *weight of each animal is considerably more than double* what it was at the commencement of the last century.

About two hundred and fifty years ago there was found in Scotland a race of wild cattle, which were of a pure white colour, and had (if we may credit Boethius) manes like lions. We cannot but give credit to the relation, having seen in the woods of Drumbanrig, in North Britain, and in the park belonging to Chillingham Castle, in Northumberland, herds of cattle probably derived from that savage breed. They have lost their manes, but retain their colour and fierceness; are of a middle size, long-legged, with black muzzles and ears; and their horns are fine, and have a bold and elegant bend. The keeper of those at Chillingham said, that the weight of the ox was 38 stone, of the cow, 28; and that their hides were more esteemed by the tanners than those of the tame species. These cattle are as wild as any deer; for on being approached they instantly take to flight, and gallop away at full speed; nor do they ever mix with the tame cattle, or come near the house, unless constrained by hunger in very severe weather. When it is necessary to kill any of them, they are always shot; and if the keeper should only wound the beast, he must take care to keep behind some tree, or his life would be in danger from the furious attacks of the animal, which will never desist till a period is put to its life.

Frequent mention is made of our savage cattle by historians: one relates that Robert Bruce was (in chasing these animals) preserved from the rage of a wild bull by the intrepidity of one of his courtiers, from which he and his lineage acquired the name of Turn-bull. Fitzstephens mentions these animals (uri sylvestres) among those that harboured in the great forest which in his time lay adjacent to London. Another enumerates, among the provisions at the great feast of Nevil, archbishop of York, six wild bulls; and Sibbald assures us, that in his days a wild and white species was found in the mountains of Scotland. Bishop Leslie says, that in 1598 cattle in a wild state were met with in Stirling, Cummernald, and Kincairn.

Our oxen, which we must not confound with the buffalo, bison, or urus, although probably derived from the latter, are now peculiar to this temperate climate; great heat or excessive cold being equally injurious to them. Besides, this species, which is so abundant in Europe, is not found in the southern countries, and is not extended beyond Armenia and Persia, nor beyond Egypt and Barbary in Africa; for in India, in the rest of Africa, and even in America, the cattle have a bunch on the back, and are animals which many travellers have considered to be of a different species. Those found at the Cape of Good Hope, and in many parts of America, were carried from Europe by the Dutch and Spaniards. In general, those countries which are rather cold agree better with our oxen than hot climates, they being larger and fatter in proportion as the climate is humid, and as it abounds in goodness of pasture; indeed, of all quadrupeds the ox seems most liable to alteration from its pasture. The oxen of Denmark, Padolia, Ukraine, and Calmuck Tartary, are the largest; those of England, Ireland, Holland, and Hungary, are larger than those of Persia, Turkey, Greece, Italy, France, and Spain; and those of Barbary are the smallest.

Our breed of horned cattle has in general been so much improved by a foreign mixture, that it is somewhat difficult to point out the original kind of these islands. Those which may be supposed to have been purely British are far inferior in size to those in the northern part of the European continent. The cattle of the Highlands of Scotland are exceedingly small, and many of them, males as well as females, are without horns. The Welsh runts are much larger; and the black cattle of Cornwall are of the same size with the last. The large species that is now bred in most parts of Great Britain is either entirely of foreign extraction, or our own improved by a cross with a foreign kind. The Leicestershire and Lincolnshire breeds derive their size from that of Holstein; and the large hornless cattle that

are bred in some parts of England came originally from Poland. This improvement, at whatever rate it ought to be estimated, has been the work of many centuries.

The best traditional accounts which have reached us assign the honour of cattle improvement, upon any permanent and extensive plan, to the eighteenth century. A laudable spirit of inquiry had gone forth during the early part of the last century in the midland counties, and in the north of England, embracing as its object the selection and amelioration in point of form of our two most celebrated species of neat cattle, the long and the short-horned oxen.

Sir Thomas Glasby, or, with more probability, some one of his predecessors, who may be reckoned among the earliest of our improvers, had already selected from Lancashire and Westmoreland a herd of the best-shaped long-horned stock, the original produce of those counties. From this herd of Sir Thomas was derived the famous Canley breed, which, according to concurring traditions, were an original and uncrossed species, but had been chosen and bred with the utmost care and judgment, considering the prevailing ideas of that period; and they assumed their appellation from the circumstance of being first introduced into Warwickshire, from the banks of the Trent, by Mr. Webster of Canley. The colours of the Canley cows were red, pied, brindled, and finch-backed, that is, having a list of white along the back. The fashionable stock throughout that county and Staffordshire were of the colours above described, and are distinguishable at this day.

But the period approached when the subject of cattle improvement was destined to receive a thorough investigation, and to be reduced to at least a *regular* system, if not to its *true* principles. About the middle of the same century arose an individual, who, from natural talent as well as education and profession, appeared admirably calculated to take the lead in a business of this kind; the conjunction

also was favourable, and the graziers of the surrounding country were prepared to receive with enthusiasm the new light about to beam upon them. The reader has probably already anticipated the respectable name of Robert Bakewell, of Dishley farm, in Leicestershire, whose fame as an agriculturist, an improver of live stock, and a philanthropist, has been so widely and so justly diffused. His practical method was to select the finest forms from those species which stood highest in his estimation; and breeding in and in with those individuals, with patient unwearied application, through a number of descents, ever carefully rejecting a deviating shape, he at length obtained the desired conformation and properties, and this variety was fixed and complete. Upon these principles, joined with a universal experience in the different species and varieties of live stock, acquired by travel, this famous breeder constructed his hypothesis, and established those permanent varieties of animals which have made their way, and maintained their reputation, in almost every quarter of this country, in Ireland, and in foreign parts.

But it is the first duty of history to declare the truth, for the benefit of all, instead of mutilating or disguising it, to serve the narrow or prejudiced views of parties, or of individuals. Bakewell's ideas were certainly in some respects narrowed by professional habits and interests. He appeared to contemplate an interest of the grazier distinct from that of the public; and he entertained also certain hypothetical notions, originating probably in his own mind, as fundamental and irrefragable principles, but which all experience, both of former and later times, has proved to be erroneous.

It was his grand maxim, that the bones of an animal intended for food could not be too small, and that the fat being the most valuable part of the carcass, it could consequently not be too abundant. In pursuance of this leading theory, by inducing a preternatural smallness of bone

and rotundity of carcass, he sought to cover the bones of all his animals externally with masses of fat. Thus, the entirely new Leicester breed, from their excessive tendency to fatten, produce too small a quantity of eatable meat, and that too, necessarily, of inferior flavour and quality. They are in general found defective in weight, proportionably to their bulk; and if not thoroughly fattened, their flesh is crude and without flavour; while if they be so, their carcasses produce little else but fat, a very considerable part of which must be sold at an inferior price, to make candles, instead of food; not to forget the very great waste which must ever attend the consumption of over-fattened meat.

This great and sagacious improver, very justly disgusted at the sight of those huge, gaunt, leggy, and misshapen animals, with which his vicinity abounded, and which scarcely any length of time or quantity of food would thoroughly fatten, patriotically determined upon raising a more sightly and a more profitable breed; yet, rather unfortunately, his zeal impelled him to the opposite extreme. Having painfully, and at much cost, raised a variety of cattle, the chief merit of which is to make fat, he has apparently laid his disciples and successors under the necessity of substituting another, which will make lean.

Since the time of Bakewell, it must have been highly gratifying to cultivators and farmers of every description, that their labours have been patronised and encouraged by a Bedford, a Coke, a Parry, a Sebright, a Somerville, a Western, and many others, whose names will be handed down to posterity as benefactors to their country.

Having traced the progress of our cattle from the earliest periods, and the sources of improvement in their breed, we shall now proceed to a detail of their remarkable properties, nature, and useful qualities.

In many parts of England and on the continent, the ox is used for labour; he is particularly serviceable for the

plough, and in drawing heavy loads; indeed, he is the only horned animal in these islands that will apply his strength to the service of mankind; and it is now generally allowed, that in many cases *oxen* are more *profitable* in the draught than horses,—their food, harness, and shoes, being cheaper; and should they be lamed, or grow old, an old, working beast will be as good meat, and fatten as well, as a young one.

That the ox is not so proper as the horse, ass, or camel, &c. for *carrying* burdens, the form of his back and loins clearly demonstrates; but the thickness of his neck and the breadth of his shoulders sufficiently indicate his qualification for the *yoke*. Notwithstanding it is in this manner that he draws with the most advantage, yet in some provinces of France they oblige him to draw with his *horns;* for which they give as a reason, that when harnessed in this manner he is managed with more ease: his head is strong, and he may draw very well when so yoked, but certainly with much less advantage than when he draws by the shoulders. He seems to be made on purpose for the plough; the size of his body, the slowness of his motions, the shortness of his legs, and even his tranquillity and patience when he labours, concur in making him proper for the cultivation of the ground, and more capable than any other animal of overcoming the constant resistance that the earth opposes to his efforts. The horse, although perhaps as strong as the ox, is, however, less proper for this work, as his legs are too long, his motions too great and sudden, and he is also more impatient and sooner fatigued.

The age of the ox is known by the teeth and horns. This animal is furnished with eight cutting teeth in the *lower* jaw: at the age of ten months the two middlemost of these fall out, and are replaced by others that are not so white, but broader. At the age of sixteen months the two next milk-white teeth fall out likewise, and others come up in their room; thus, at the end of every six months, the

creature loses and gains, till he arrives at the age of three years, when all the cutting teeth are renewed, and then they are long, pretty white, and equal; but in proportion as the animal advances in years, they become irregular and black, their inequalities become smoother, and he is less capable of chewing his food. Thus the ox often declines from this single cause; for as he is obliged to eat a great deal to support life, and as the smoothness of the teeth makes the difficulty of chewing very great, a sufficient quantity of food cannot be supplied to the stomach. Hence the poor animal sinks in the midst of plenty, and every year grows leaner and leaner, till it dies.

The horns are another and a surer way of determining this animal's age. At three years old it sheds its horns, and new ones arise in their place, which continue as long as it lives. At four years the ox has small, pointed, neat, smooth horns, thickest near the head. At five the horns become larger, and are marked round with a ring of the former year's growth. Thus, while the animal continues to live the horns continue to lengthen, and every year a new ring is added at the root; so that allowing three years before their appearance, and then reckoning the number of rings, we may ascertain the age exactly. It is common with dealers to obliterate these rings, by shaving the horns, in order to conceal the age of the beast.

Oxen attain maturity at about eighteen months or two years. From this period till they are nine years old they are in their greatest vigour; and the duration of their lives seldom exceeds fifteen or sixteen years.

Culley's marks of a good cow are these: wide horns, a thin head and neck, full breast, broad back, large deep belly, the udder capacious but not too fleshy, the milk-veins prominent, and the bag tending far behind; teats long and large, buttocks broad and fleshy, tail long and pliable, legs proportionable to the size of the carcass, and the joints short. To these outward marks may be

added a gentle disposition, a temper free from any vicious tricks, and perfectly manageable on every occasion. On the other hand, a cow with thick head and short neck, prominent back-bone, slender chest, belly tucked up, small udder or a fleshy bag, short teats, and thin buttocks, is to be avoided, as totally unfit for the purposes either of the dairyman or the grazier. The most valuable cows are those which are bred in Yorkshire, Staffordshire, and upon the strong lands in other parts of England, and in Ayrshire in Scotland.

The criterion of excellence in cattle, as derived from colour, is of no importance; and all that can be said is, that white and red cattle are less hardy than the black-haired. The general indications of health in the animals, when in a lean state, are suppleness of the skin, and gloss upon the coat.

Oxen are subject to many diseases, some of which are very dangerous; but as their life is not so artificial, and their structure is less complex than that of the horse, they are not liable to so many ailments as that animal. They are much exposed to the attacks of a fly with two wings, the *œstrus bovis* of Linnæus; the female of which makes a number of small punctures in the backs of horned cattle, and in each of them deposits an egg, which is afterwards hatched by the warmth of the creature's body, and produces a worm or maggot, which soon finds a lodging perfectly suitable to it. The places where these insects are lodged are easily to be perceived, by a tumour raised above the surface, within which the insect is to be found under the skin of the animal.

These maggots may, with some degree of propriety, be said to be the inhabitants of the galls, or excrescences, of animals, since they are contained in tumours similar to the galls of the oak and other vegetables, which are well known to be the production of insects, in like manner.

The aperture made by the female fly never closes, but enlarges with the tumour, and serves both as a breathing

place for the young insect, and as a passage through which the superfluous humour contained in the tumour discharges itself, which would otherwise, if confined, occasion a large abscess, and suffocate the little creature.

Happily for the ox, this little worm is not furnished with those hooks observable in the maggot of the common flesh-fly, wherewith it lacerates and pulls the flesh in pieces,—or its situation would be truly wretched, with so many devourers gnawing and tearing its back at once, of which it could not possibly rid itself. This insect, on the contrary, being perfectly satisfied with the moisture it finds in the tumour, gives the animal it feeds on little or no uneasiness.

As soon as the worm has attained its full growth, it works itself by degrees out of the tumour through the hole, and falls on the ground, where it crawls about till it has found a place of safety to repose in during its several transformations; here it soon loses all motion, and the skin becomes hard and black, forming a shell to protect it from accidents, till the fly is ready to make its appearance. When it is perfectly formed, it breaks through one end of its prison, and comes forth furnished with only two wings, yet at first sight so very like some of the smaller humble-bees as to be easily mistaken for them. On attentive examination, however, it will be found to possess a mouth without teeth or lips, short, glossy antennæ, rounded at the ends, and reticular, chestnut-coloured eyes. In the hinder and under part of the body of the female there is a cylindrical tube, which she can protrude at pleasure, and with which she pierces the skin of the animal to lodge her eggs, as has been already observed.

When cattle are at rest, or not employed in grazing or chewing their cud, they are observed frequently to lick themselves. By this they raise up the hair of their coats, and often swallow it in considerable quantities. The substance thus swallowed is indigestible, and remains in the stomach. There it collects into round, smooth balls, which sometimes attain so great a size as to incommode, and even prevent

digestion. We have seen some of those balls which had been taken from the stomach of a cow, and which had attained nearly to the size of a small cricket-ball.

Both cows and oxen love wine, vinegar, and salt; and they will devour with avidity a seasoned salad. In Spain, and some other countries, they place near the young calf one of those stones called *salegres*, which are found in salt mines; they lick this salt-stone when the mother is absent at pasture, which excites the appetite, or creates thirst so much, that the moment the cow returns, the young calf sucks with great eagerness; and this makes them grow fatter and faster than those to which no salt is given.

Cows seldom produce more than one calf at a birth. It is a remarkable fact, that when a cow happens to produce two calves, of different sexes, at the same time, the male is always perfect, but the female is incapable of continuing the species, and is known to farmers by the name of a *free martin*.

There is scarcely any part of the ox without its use: the blood, marrow, hide, hair, horns, hoofs, milk, cream, whey, urine, liver, gall, spleen, bones, and dung, have each their particular use in manufactures, commerce, and medicine.

The skin has been of great use in all ages. The ancient Britons, before they knew a better method, built their boats with osiers, and covered them with the hides of bulls, which served for short coasting voyages.

That these *vitilia navigia*, as Pliny calls them, were not made for long voyages, is evident, not only from their structure, but from the account given by Solinus, that the crew never ate during the time they were at sea.

> "The bending willow into barks they twine,
> Then line the work with spoils of slaughtered kine:
> Such are the floats Venetian fishers know,
> Where in dull marshes stands the settling Po;
> On such to neighbouring Gaul, allured by gain,
> The bolder Britons cross the swelling main." ROWE.

Vessels of this kind were still in use within the last half century on the Irish lakes, and on the Dee and Severn: in Ireland they are called *curach*, in England *coracles*, from the British *cwrwgl*, a word signifying a boat of that structure.

At present, the hide, when tanned and curried, serves for boots, shoes, and numberless conveniences of life.

Vellum is made of calves' skin, and gold-beaters' skin is made of thin vellum, or a finer part of the ox's intestines. The hair, mixed with lime, is a necessary article in building. Of the horns are made combs, boxes, handles for knives, and drinking vessels; and when softened by water, obeying the manufacturer's hand, they are formed into pellucid laminæ for the sides of lanterns. The latter conveniences we owe to our great king Alfred, who first invented them to preserve his candle time-measurers from the wind; or (as other writers inform us) the tapers that were set up before the reliques in the miserable tattered churches of that time.

In medicine, the horns were formerly employed as alexipharmics, or antidotes against poison, the plague, or the small-pox: they have been dignified with the title of English bezoar, and are said to have been found to answer the purpose of the oriental kind. The chips of the hoofs, and parings of the raw hides, serve to make carpenters' glue.

The bones are used by mechanics where ivory is too expensive, by which means the common people are furnished with many neat articles at a cheap rate. From the tibia and carpus bones is procured an oil much used by coachmakers and others in dressing and cleaning harness, and all trappings belonging to carriages; and the bones, when calcined, afford a fit matter for tests for the use of the refiner in the smelting trade.

The blood is used by sugar-bakers for refining sugar, and is an excellent manure for fruit-trees: it is also the basis of that fine colour, the Prussian blue. The fat, tallow, and suet, furnish us with light, and are also used to precipitate the

salt that is drawn from briny springs. The gall, liver, spleen, and urine, have also their place in the materia medica. The uses of butter, cheese, cream, and milk, in domestic economy, and the excellence of the latter in furnishing a palatable nutriment for most people whose organs of digestion are weakened, are too obvious to be insisted on.*

In Spain the bull-fights have long been a favourite amusement with the natives of that country; and it may not perhaps be uninteresting to subjoin a short account of that kind of diversion.

The best breed of bulls is chosen for this purpose; and their distinguishing characters are so well known to connoisseurs, that as soon as the animal appears upon the arena they know where he was bred. The edifice where these sports take place is a circular amphitheatre, surrounded by twelve

* The constituent parts of milk are found to be, oil, gelatine, muriate of soda, curd, sugar of milk, muriate of potash, sulphur, and phosphate of lime. The milk of all animals possesses these substances; but the proportions vary in different species. The kinds of milk which are principally used as food by man are those of the cow, the mare, the ass, the ewe, the goat, and the camel: the use of the latter is chiefly confined to China and Africa, and that of the mare to Tartary and Siberia. In India the natives prefer the milk of the buffalo to that of the cow. In Italy and Spain the milk of the goat is more generally used than in any other European country: they are driven into the streets of Madrid, Florence, Leghorn, and other towns, early in the morning, in flocks, and there milked. The goat will allow herself to be sucked by the young of various other animals; even a foal which had lost its mother has been suckled by a goat; but it was necessary to place the goat in an elevated position, to facilitate the purpose. As the butter of goat's milk contains less oil, and a larger portion of gelatine than that of the cow, it is recommended by physicians as being nearly as light as ass's milk. Ewe's milk is declining gradually from the general use which it formerly obtained, although it makes excellent cheese; and milking ewes, as well as goats, might be kept with advantage, where there are extensive upland grass lands. The milk of the ass is the nearest in quality to that of the human female, and is much recommended in pulmonary and hepatic affections. A mixture of soda-water and warm cow's milk, as a substitute, is found to be almost equally light.

rows of seats, rising one above another. The show begins with a procession round the arena, in which the combatants, who are to attack the fierce animal, appear both on horseback and on foot. After them, two *alguazils*, dressed in perukes and black robes, advance with great gravity on horseback, and ask from the president of the entertainment an order for it to commence. A signal is instantly given; and the animal, which was before shut up in a kind of hovel, makes his appearance. On this, the officers of justice, not liking the company of their new guest, prudently retire as fast as they can, and their flight is a prelude to the cruel pleasure about to be enjoyed by the spectators. The bull is received with loud shouts of ecstasy; and he is destined to contend first with *picadores*, mounted on horseback, who, dressed after the ancient Spanish manner, and as it were fixed to their saddles, wait for him, each being armed with a strong lance. Formerly the highest nobles did not disdain to practise this exercise, which requires strength, courage, and dexterity; even at present, some of the *hidalgos* solicit for the honour of fighting the bull on horseback, and they are then presented to the people by some of the principal officers of the court.

The scene is opened by the picadores. The bull often darts upon them without any provocation, and this is hailed as an earnest of much entertainment. If he returns immediately to the charge, undaunted by the sharp points of the weapons with which his attack is sustained, the shouts of applause are redoubled, and the joy of the spectators is turned into enthusiasm; but if, struck with terror, the bull appears quiet, and shuns his antagonists, by walking round the arena in a timid manner, he is hissed and hooted at by the spectators, and all those near whom he passes fail not to load him with blows. He seems then to be a common enemy who has some great crime to expiate. If nothing can rouse his courage, he is deemed unworthy of being tormented by men; the cry of *perros, perros,* (dogs) calls

forth new enemies against him, and large dogs are let loose upon him, which seize him by the neck and ears in a furious manner. The animal then finds the use of those weapons with which he is furnished by nature; he tosses the dogs in the air, who fall down stunned, and often mangled. They frequently, however, recover, and renew the combat, which generally ends in victory on their side, and thus the bull perishes ignobly. If, on the other hand, he offers himself to the combat with a good grace, he runs a longer and nobler, but a more painful career. The first act of the tragedy is performed by the combatants on horseback: this is the most animated and bloody of all the scenes, and often the most disgusting. The irritated animal braves the pointed steel, which makes deep wounds in his back; attacks with fury the innocent horse who carries his enemy, rips up his sides, and overturns him, together with his rider. The latter, thus dismounted and disarmed, would be in imminent danger, did not combatants on foot, called *chulos*, come up to divert the bull's attention, and provoke him, by shaking before him pieces of cloth of various colours. The assistance, however, which they offer to the dismounted horseman is at their own risk; for the bull frequently pursues them, and they then stand in need of all their agility; yet they often escape from him, by letting fall in his way the piece of stuff which was their only arms, and against which the deceived animal vents all his fury. Sometimes he is not satisfied with this substitute, and the combatant is obliged to throw himself over a barrier six feet high, which encloses the lower part of the arena. This barrier is sometimes double, the intermediate space forming a gallery, behind which the pursued *torreadore* is safe. But when the barrier is single, the bull attempts to leap over it, in which he sometimes succeeds. When this happens, the consternation of the nearest spectators may be easily imagined; they crowd to the upper seats, and often receive more injury from their haste to escape, than from the fury of the bull, who, stumbling at every

step he takes amongst the narrow seats, attends more to his own safety than to revenge, while the blows he receives from all quarters soon bring him down.

If the bull does not succeed in his attempt to jump over the barrier, he presently returns. By this time his adversary has recovered, and regained his feet: he instantly remounts his horse, if it has not been killed, or rendered useless, and renews the attack, in which he is often obliged to change his horse several times. Words sufficiently expressive cannot then be found to celebrate these acts of prowess, which are the favourite topic of conversation for several days. The poor horses, who are very affecting models of patience, courage, and docility, may be seen trampling on their own bloody entrails, which drop from their sides, half torn open, and yet obeying, for some time after, the hand which conducts them to new tortures. Spectators who possess any feeling, now experience a disgust which converts their pleasure into pain. They are soon, however, reconciled to the entertainment, by a new scene which is preparing for them. The combatants on horseback retire as soon as it is concluded that the poor animal has been sufficiently tormented by them, and he is then left to be irritated by those on foot. These, who are called *banderilleros,* advance towards the animal; and the moment he darts upon them, plunge into his neck, two by two, a kind of dart called *banderillo,* the points of which are hooked, and ornamented with small streamers of coloured paper. The fury of the bull is now redoubled; he roars, tosses his head, and the vain efforts he makes serve only to increase the anguish of his wounds: this last scene calls for the agility of his adversaries. The spectators at first tremble for them, when they behold them so near the horns of this formidable animal; but they aim their blows so skilfully, and avoid the danger so nimbly, that, after having been seen a few times, they are neither pitied nor admired; and this address and dex-

terity seem only to be a small episode to the tragedy, which concludes in the following manner:—when the vigour of the bull is almost exhausted, when his blood, issuing from numerous wounds, streams along his neck and moistens his robust sides, and when the people, tired of one object, demand another victim, the president gives a signal of death, which is announced by the sound of trumpets. The *matador* then advances, while the rest quit the arena; with one hand he holds a long dagger, and with the other a flag, which he waves backwards and forwards before his adversary. They both stop, and gaze at each other; and while the agility of the matador deceives the impetuosity of the bull, the pleasure of the spectators, which was for some time suspended, is again awakened into life. Sometimes the bull remains fixed, throws up the earth with his feet, and appears as if meditating revenge.

An able pencil might not disdain to delineate the group formed by the bull in this condition, and the matador, who calculates his motions and divines his projects. An awful silence prevails whilst this dumb scene is exhibiting. At length the matador seizes his opportunity, and gives the mortal blow: if the animal instantly falls, the triumph of the conqueror is proclaimed by the shouts of a thousand voices; but if the blow does not prove decisive, if the bull survives, and still seeks to brave the fatal steel, murmurs are heard on all sides; and the matador, whose glory was about to be raised to the skies, is considered as an unskilful butcher. He endeavours to be soon revenged, and to disarm his judges of their severity; yet his zeal sometimes degenerates into blind fury, and his partisans tremble for his safety. He at length directs his blow better; the animal vomits up blood, staggers, and falls; whilst his conqueror is intoxicated with the applauses of the people. Three mules, ornamented with bells and streamers, come to terminate the tragedy. The bull is dragged ignominiously from the arena by a rope tied round his horns, and leaves

only the traces of his blood and the remembrance of his exploits, which are soon effaced on the appearance of a successor. On each of the days set apart for these entertainments at Madrid, six bulls are thus sacrificed in the morning, and twelve in the afternoon. The three last are given exclusively to the matador, who, without the assistance of the picadores, exerts his ingenuity to vary the pleasure of the spectators. Sometimes he causes the bull to be combated by some intrepid stranger, who attacks him mounted on the back of another bull; and sometimes, for the amusement of the populace, he matches him with a bear. When thus engaged, the bull has something wrapped round the points of his horns, which prevents him from giving mortal wounds. The animal, in this state, is called *embolado*, and has not power to pierce or tear his antagonist. The amateurs then descend in great numbers to torment him, and often pay for their cruel pleasure by violent contusions; but the bull at length falls under the stroke of the matador. The few spectators who are not infected by the general madness of the sport, regret that the wretched animals do not, at least, purchase their lives at the expense of so many torments and so many efforts of courage, and would willingly assist them to escape their persecutors. In such minds disgust succeeds to compassion, and satiety to disgust. Such a series of uniform scenes renders languid the interest which was excited by the expectation of entertainment at the beginning of the spectacle. But to connoisseurs, who have studied all the stratagems of the bull, the resources of his address and fury, and the different methods of irritating, tormenting, and deceiving him,—none of these scenes resemble each other; and they pity those frivolous observers who cannot remark all their varieties.

It was formerly a custom in England to bait bulls with a particular breed of dogs, trained for that purpose, and called bull-dogs, in order to render their flesh more tender when killed; and this custom became at length a subject

for entertainment to the less civilised class of people, who used frequently to bait bulls merely for their diversion; but this savage and barbarous practice seems now to be nearly left off, and to have given way to a voluntary refinement of manners.

How widely contrasted with the preceding is the amiable disposition that is evinced towards this race of animals by the peasantry of Switzerland! In the Swiss canton of Appenzell, pasturage being the chief employment of the inhabitants, the breeding of cattle and subsequent management of the dairy are carried to great perfection; in fact, these mountaineers afford us an excellent portrait of a true pastoral nation, especially as both rich and poor are cow-keepers: although the latter are unable to grow sufficient hay for their cattle during the winter season, and many possess no grass lands to supply this deficiency, they employ agents, who inform them where good hay is to be procured, which is made by the farmer in favourable weather. This being ascertained, the *senn*, or great cow-keeper, makes his agreement for the winter with wealthier farmers, on whose lands he successively drives his cattle on their return from grass. Thus the itinerant senn, with his cows, visits several places during the winter. The farmer who supplies the hay furnishes him not only with stabling for his cattle, but also with board and lodging for himself and family. The senn, in return, besides paying the stipulated price for the hay, allows to his host as much milk, whey, and zieger,* as may be used in the house.

In the middle of April, when nature again revives, the senn issues forth with his herd into the meadows and fertile Alps, where he remains for the summer. Thus the life of these individuals is a constant migration, affording them the most pleasing varieties, and blessing them with health,

* A kind of lean cheese.

content, and cheerfulness. The mountaineer lives with his cows in a perpetual exchange of reciprocal acts of gratitude; the latter affording almost every requisite he needs, and in return they are provided for and cherished by the senn, and sometimes more so than his own children. They are never ill-treated nor beaten; for his voice is sufficient to guide and govern the whole herd, and there reigns a perfect cordiality between them.

In the canton of Appenzell the cow enjoys more of that attention which is due to every useful animal, and is altogether far more comfortable, than millions of the human race in Europe.

In the Alps, fine cattle are the pride of their keeper, who, not being satisfied with their natural beauty, also gratifies his vanity by adorning his best cows with large bells, suspended from broad thongs; and the expense of these bells is sometimes carried to a lavish excess.

Every senn has a harmonious set of bells, of at least two or three, chiming in accordance with the famous *ranz des vaches*. The Tyrolese bring numbers of these bells, of various sizes, to every fair in the canton. They are attached to a broad strap, neatly pinked, cut out, and embroidered, and this is fastened round the cow's neck by means of a large buckle. The largest-sized bell measures upwards of a foot in diameter, and is of a uniform width at the top, swelling out in the middle, and tapering towards the end: it costs from 10 to 50 guilders; and the whole peal, including the thongs, is sometimes worth 140 or 150 guilders, while the entire apparel of the senn does not amount to the price of 20 guilders, even when he is arrayed in his best suit. The finest black cow is adorned with the largest bell, and those next in appearance wear the two smaller ones.

It is only on particular occasions that these ornaments are worn, viz. in spring, when they are driven to the Alps, or removed from one pasture to another; or in their autumnal descents, when they travel to the different farmers

for the winter. On such days, the senn, even in the depth of winter, appears dressed in a fine white shirt, with the sleeves rolled above the elbow; neatly embroidered red braces suspend his yellow linen trowsers, which reach down to the shoes; he wears a small leather cap on his head, and a new but skilfully carved wooden milk-bowl hangs across his left shoulder. Thus arrayed, the senn proceeds, singing the *ranz des vaches*, followed by three or four fine goats; next comes the finest cow, adorned with the great bell, then the other two with the smaller bells; and these are succeeded by the rest of the cattle, walking one after another, and having in their rear the bull, with a one-legged milking-stool on his horns: the procession is closed by a *traineau*, or sledge, bearing the dairy implements.

It is surprising to see the pride and pleasure with which the cows stalk forth when ornamented with their bells. One would hardly imagine that these animals are sensible of their rank, and affected by vanity and jealousy, and yet if the leading cow, who has hitherto borne the largest bell, be deprived of her honours, she manifests her disgrace by lowing incessantly, abstaining from food, and growing lean! The happy rival, on whom this badge of superiority has devolved, becomes the object of her vengeance, and is butted, wounded, and persecuted, by her in the most furious manner, until she regains her bell, or is entirely removed from the herd. However singular this may appear, it is placed beyond all doubt by the concurring testimony of centuries.

When dispersed on the Alps, the cattle are collected together by the voice of the senn, who is then said to allure them. How well these cows distinguish the voice of their keeper, appears from the circumstance of their hastening to him, although at a great distance, whenever he commences singing the *ranz des vaches*. The cow which is known to stray the farthest is furnished with a small bell, so that by her arrival he knows that the rest are assembled.

In the vicinity of Buenos Ayres, where cattle have multiplied in an astonishing degree, they hunt them merely for their fat and hides; and the manner of catching the black cattle of Brazil is thus described by Murphy in his travels:

"I was present," he says, "at the circus, when this curious spectacle was exhibited,—the first of the kind, I was told, ever represented in Lisbon. It conveyed a good idea of the manner in which the inhabitants of that fertile region catch their cattle. They kill the animals for the sake of their hides, which are brought to Portugal to be manufactured. Of the flesh, I understand the Brazilians make but little account; they merely take as much as is sufficient for the present exigence, and leave the rest a prey to the birds and beasts of the forest. The circus was very crowded on this occasion. About 5 o'clock, P.M., a native of Pernambuco entered the arena, mounted upon a spirited horse of the Arabian breed. The rider was of a copper colour, of a strong and active figure, his hair black, and his head uncovered. He wore a loose mantle, somewhat like the *paludamentum* of the ancient Romans.

"The skin of a wild beast was thrown loosely over the horse instead of a saddle, from which were suspended two cords for stirrups. The whole appeared quite in character. As soon as the cavalier had paid his obeisance to the spectators, a bull, whose natural ferocity had been heightened in the stall, rushed in, and had nearly overthrown them in the first onset; only the fleetness of the horse, and the dexterity with which he managed the reins, could have saved his life. The furious animal pursued him several times round the arena, till he became tired, after which he stood panting in the middle of the ring. The horseman still continued his circular course at an easy pace, holding a long cord in one hand with a slip-knot at the end of it. Having watched a proper opportunity, he cast it over the horns of the bull, and rode twice round him; then ordering the gate to be thrown open, he made

off at full speed till he came to the full length of the cord; upon which he received a check that threw him on his back, and made the horse caper on his hind feet: nevertheless he clung to him by his knees, and in this reclined posture held the cord in both hands, and the bridle in his mouth. The bull at this time was entangled by the rope, with his head drawn in between his fore feet, and incapable of motion. The Brazilian dismounted, approached, and drew from beneath his mantle a short hunting spear, which, with an apparently slight force, he darted into the head of the animal, in consequence of which he instantly fell down and expired."

THE LANCASHIRE BREED.

The long-horned or Lancashire breed of cattle is distinguished from others by the length of their horns, the thickness and firm texture of their hides, the length and closeness of their hair, the size of their hoofs, and their coarse, leathery, thick necks; they are likewise deeper in their fore, and lighter in their hind quarters, than most other breeds; narrower in their shape, less in point of weight than the short-horned, though better weighers in proportion to their size; and although they give considerably less milk, it is said to afford more cream in proportion to its quantity. In colour they are more varied than any of the other breed; but, whatever the colour be, they have in general a white streak along their back, which the breeders term finched, and mostly a white spot on the inside of the hough (Culley, p. 53). In a general view, this race, notwithstanding the many efforts that have been made towards its improvement, remains with little alteration; for, excepting in Leicestershire, none of the sub-varieties (which differ a little in almost every one of these counties where the long horns prevail) have undergone any radical change,

Pl. 8.

R Sands fc

LANCASHIRE COW.

R. Sands fc

DEVON: OX.

London. Published. May 1.1829 by J. Le Keux Penton. Place. & R. Sands Brewer St.

or any obvious amelioration. The improved breed of Leicestershire, as before remarked, is said to have been formed by Webster, of Canley, near Coventry, by means of six cows brought from the banks of the Trent about the beginning of the last century, which were crossed with bulls from Westmoreland and Lancashire. Bakewell, of Dishley in Leicestershire, afterwards took the lead as a breeder, by selecting from the Canley stock; and the stocks of several other eminent breeders have been traced to the same source. — (MARSHALL'S *Midland Counties*, vol. i.)

These animals were in so much request, that a well-known bull, called Shakspeare, belonging to Mr. Paget, was sold, in November 1793, for 400 guineas; and at Mr. Tawler's sale a cow was sold for 173*l*. This breed is confined almost exclusively to the counties of Leicester, Lancaster, Derby, Stafford, Salop, Warwick, Worcester, and Northampton.

THE RED CATTLE OF DEVONSHIRE.

This ancient and long-celebrated breed of cattle is to be found in its native purity of blood in the northern districts of Devonshire. Their station, commencing at Barnstaple, may be traced by pursuing the line of the river Taw to Chumleigh, Tiverton on the Ex, Wellington, and nearly to Taunton: thence northward, straight to the sea, over the eastern boundary of the Quantoe hills, to Stoke Courcey; making a distance of fifty-five miles in length, and nearly thirty in breadth, viz. from Tiverton to Ilfracombe.

The colour of this breed is generally blood red, varying in some to a paler hue, in others to a brown or mahogany colour. The hide is among the thinnest of British growth, but of excellent substance and suppleness, and covered with a coat either quite smooth and sleek, or waved in beautiful

ringlets. They are indifferently wide and middle-horned, with the horns curved upwards, and backwards at the points. They partake much of the symmetry and delicacy of the deer, in the head, shoulder, quarter, legs, and hoofs; and compared with the horse, may be properly esteemed the *blood* species of our neat cattle. Their bone is universally flat and fine; and with reference to aptitude for labour, their form has more of symmetry and correctness than any other breed. In size they rank in the fourth or fifth class, presenting the great convenience of variety in that respect—having among them large, moderate, and even small-sized, of equal blood, form, and likelihood of proof.

The Devon cow is remarkable for the delicacy and beauty of her form, the glossy silkiness of her hide, the smallness and symmetry displayed in her head, and for the spirited, cheerful lustre of her eye. The appearance of these cows is indicative of a larger quantity of milk than they really produce, and they are less valued for its abundance than quality, which is said to be peculiarly rich and excellent. It appears rational, that their superior tendency to fatten precludes the possibility of a very copious secretion of milk; hence North Devon cows are better adapted to the private than to the farming dairy. In truth, they feed with a quickness beyond any other breed; and have the peculiar and important qualification, that their flesh, in fineness of grain, juiciness, and flavour, is beyond all other cow beef; and is esteemed by many persons in the West fully equal to that of oxen.

The true-bred ox of this race is not only the speediest walker, and the most active of any breed upon this island, but of any of the genus throughout Europe, according to the comparative accounts hitherto within our reach. These oxen would even trot well, should it be necessary to feed them equal to such an exertion: they are, moreover, the most spirited and free of their kind, from which appropriate qualifications they have ever stood in the first rank as

labouring cattle. The largest of them are equal to the strongest labour.

The red cattle are yoked at two years old, and lightly worked, until by a gradual increase they come into full work at five and six. Graziers prefer them at five, at which age they obtain the highest price, but they are usually worked until six years old;—in their own country they remain at their labour throughout the day, being baited in the field from a bundle of hay.

These oxen are not parted with by the tillage farmers until the barley-sowing is over: they are fattened in six or eight months to the average weight of 45 score, or upwards of 112 stone, Smithfield weight. Being kept on until spring, fattened on hay alone, which in the grazing districts of the west, where oil-cake is not used, is held equally nutritious with corn, these oxen stand the drift to London with little waste. There are instances of marsh-fed heifers, bought in April or May, quite poor, being fit for the butcher by the middle of July, and in August uncommonly fine beef. No beasts, we believe, improve so speedily, from the very lowest condition, as the best of this breed.

The shade of colour most admired in the red cattle is the glossy brown, or mahogany, which is of higher value in proportion to the silky smoothness of the coat. Those with curly hair are deemed excellent *provers*. The paler shades, also, if the eye be clear and good, are equally valuable both for labour and proof; but it is an experimental rule, that a pale skin, hard under the hand, with a dark and dull eye, denotes a *shifter* in hard work, and an indifferent *prover* under the greatest indulgence.

THE HOLDERNESS, OR DUTCH BREED.

As in the counties of Leicestershire, Stafford, Lancashire, &c., the long-horned species of cattle have immemorially prevailed; so the adjoining counties of Northumberland, Durham, and York, were, from mere fortuitous circumstances, it may be presumed, rather than from any which bear relation to either soil or climate, stocked with a species of nearly opposite properties in every particular, and distinguished by the shortness of their horns.

This short-horned breed had been established upon the eastern coast, by various importations, through a long course of time, from the Continent, chiefly from Holland. It being at length discovered that the Dutch breed were disadvantageous to the grazier, on account of their coarseness, heaviness of bone, and slow feeding, the very judicious step was taken of crossing them with the delicate and blood-like race of Normandy and the Islands. In this cross, both sides being renowned for the production of milk, originated the famous Holderness variety of short horns, the greatest milkers, probably, on the face of the earth,* as it is usual for a cow to yield twenty-four quarts of milk per day, producing three firkins of butter during the grass season. Their colours are much varied, but they are generally red and white mixed, or what the breeders call *flecked*. The heaviest and largest oxen of the short-horned breed, when properly fed, victual the East India ships, as they produce the thickest beef, which, by retaining its juices, is the best adapted for such long voyages. Our royal navy should also be victualled from these cattle; but, owing to the jobs made by contractors, and other abuses, it is to be feared that our honest tars are often

* The honour of the first introduction of this breed is generally given to the late Sir William Quinten.

J. Le Keux fe.

HOLDERNESS COW.

J.J.e Keux fe.

HEREFORD OX.

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fed with beef of an inferior quality: however, the coal ships from Newcastle, Shields, Sunderland, &c. are wholly supplied with the beef of these valuable animals. These oxen commonly weigh from 60 to 100 stone (14 pounds to the stone); and they have several times been fed to 120, 130, and some particular ones to upwards of 150 stone, the four quarters only.

A red ox of this breed, bred and fattened by Sir Henry Grey, Bart., of Howick in Northumberland, was killed when seven years old, and weighed as follows: —

	st.	*lbs.*
The two fore quarters	82	2
The two hind quarters	70	7
Weight of whole carcass ...	152	9
Tallow	16	7
Hide	9	2
Total weight of the animal ..	178	4

The animal exhibited in London in the beginning of the year 1802, under the name of the "Wonderful Ox," was a variety produced from this breed by Mr. Collins of Barmton: it weighed more than 200 stone, and is said to have been, in every respect, an uncommonly beautiful creature.

THE HEREFORD AND SUSSEX BREED.

The Herefordshire and Sussex cattle are of a deep red colour, with fine hair and very thin hides. The neck and head are clean, the face usually white, the horns neither long nor short, but rather turning up at the points: in general they are well made in the hind quarters, wide across the hips, rump, and sirloin, but narrow in the chine, tolerably straight along the back, too flat in the ribs, thin in the thigh, and not large in their bone. When fat, an ox six years old will weigh from 60 to 100 stone — the fore quarters generally

the heaviest. The oxen are mostly worked from three to six years old, sometimes till seven, when they are turned off for feeding. The Hereford cattle are next in size to the Yorkshire short horns: both this and the Gloucester variety are highly eligible as dairy stock; and the females of the Hereford breed have been found to fatten better at three years old than any other kind of cattle, except the heifers of Norfolk. — (MARSHALL'S *Economy of Gloucestershire.*)

THE SUFFOLK DUNS.

These cattle derive their name from being usually of a dun, or a pale yellow colour: however, there are many of them that are red, or red and white. They are invariably without horns, and small in size, few of them exceeding the weight of 50 stone when fattened. The male and female are nearly of an equal height, which is seldom more than from four feet and a quarter to four feet and a half. They are rather rough about the head, and have large ears: their body is long, and their legs somewhat short: the hip-bones are high, and not well covered; and scarcely any part of the body is sufficiently well formed to please a person who has been used to oxen of the finer breeds; yet many of the cows fatten well, and produce beef of a superior quality.

In proportion to their size, they yield a great abundance of excellent milk; and as dairy stock, there are very few breeds that are preferable.

THE KYLOE.

The most valuable of the Scotch breeds are the cattle of the Western Highlands and Isles, commonly called the Argyleshire breed, or the breed of the Isle of Skye, one of the islands attached to the county of Argyle. The cattle of the

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SUFFOLK DUNS.

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KYLOE OX.

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Hebrides are called *Kyloes*, — a name often applied in the south to all the varieties of the Highland cattle, — not, as a late writer has imagined, from the district in Ayrshire called Kyle, where very few of them are kept, but from their crossing, in their progress to the south, the kyloes or ferries in the mainland and western islands, where these cattle are found in the greatest perfection. — (*General Report of Scotland*, vol. iii.)

They partake much of the nature of wild animals; and their shape is, for the most part, very beautiful. They are generally of a dark-brown colour, or black, though sometimes brindled; and they have small, white, upright horns, black at the points, and very sharp. Their hair is thick and furry.

The beef produced from this species is celebrated throughout Great Britain; and few animals are more hardy, or better calculated to thrive in cold and bleak regions.

These cattle are driven southward in immense numbers every autumn, into many of the western districts of Yorkshire; but the greatest proportion of them are sent into the southern counties of England, where they are fattened and slaughtered for consumption, or sent to the markets of London.

WELSH CATTLE.

Of the Welsh cattle there seems to be two distinct kinds. "The large sort are of a brown colour, with some white on the rump and shoulders, denoting a cross from the long horns, though in shape not the least resembling them. They are long in the legs, stand high according to their weight, are thin in the thigh, and rather narrow in the chine: their horns are white, and turned upwards; they are light in flesh, and, next to the Devons, well formed for the yoke; have very good hoofs, and walk light and nimbly. The other sort are much more valuable: they are of a black colour, with very little white; of a good useful

form, short in the leg, with round deep bodies; the hide is rather thin, with short hair; they have a lively look, and a good eye. The bones, though not very small, are neither large nor clumsy, and the cows are considered good milkers." (PARKINSON *on Live Stock*, vol. i. p. 135.)

IRISH CATTLE.

The Irish cattle, Culley thinks, are a mixed breed between the long horns and the Welsh or Scotch, but more inclined to the long horns, though of less weight than those in England.

THE ALDERNEY CATTLE.

The Alderney cattle are to be met with only about the seats of a few great landholders, where they are kept chiefly for the sake of their milk, which is very rich, though small in quantity. This race is considered, by very competent judges, as too delicate and tender to be propagated to any extent in Britain, at least in its northern parts. Their colour is mostly of a yellow or light red, with white or mottled faces; they have short, crumpled horns, are small in size, and very ill-shaped; yet they are in general fine-boned, and their beef, though high-coloured, is well-flavoured.

ABYSSINIAN OX.

Our drawing of this animal is taken from the *Encyclopædia Metropolitana;* and to the liberality of the proprietors of that work we are indebted for our representation.

As many of the ox species do not possess horns, so others, on the contrary, have horns of such a size that they would contain ten quarts each. When compared with the English

ABYSSINIAN OXEN.

URUS.

Brown Place & R. Sands Brewer St.

ox, those of Abyssinia are decidedly his inferior. In fact, the disproportion between the animal and its horns was so peculiarly striking, as to induce Mr. Bruce to suppose it to be the result of disease. However, it has since been ascertained by Mr. Salt to be a natural production. According to this gentleman's observations, it is the Galla oxen, or Sanga, that are so celebrated for the remarkable size of their horns; and he informs us, he noticed three of these animals grazing among other cattle, and they were all in perfect health. This, together with the information he obtained from the natives, that "the size of the horns is in no instance created by disease," completely overthrows the fanciful conjectures of Mr. Bruce respecting this curious species of the ox tribe. On reference to the papers appended to the last edition of Mr. Bruce's works, we are informed that he never was so fortunate as to have a view of any of these animals, although he had made numerous attempts to obtain specimens of their horns, through the means of Yamir, an old Greek, who resided at Adowa, and in whose letters a very correct description of these Galla oxen is given. He informs us that they are only brought to Antalo by the Cafilas. Mr. Salt has ascertained that they are sent, as valuable presents, to that country by the Galla chiefs, whose tribes are distributed as far as the southward of Euderta. Mr. Bruce is correct in his description of the horns, and the uses to which the Abyssinians apply them: but his ridiculous theory of disease appears to be the result of his own ingenuity. He considers that it is created by the pasture and climate, and tells us that great care is taken to encourage its progress; also that great emaciation attends its increase, gradually extending to the spine of the neck, which ultimately becomes so callous that the animal is unable to lift its head. "I should not," observes Mr. Salt, "venture to speak so positively upon this matter, had I not indisputably ascertained the facts; for the *Ras* having subsequently made me a present of three of these animals alive,

I found them not only in good health, but they were so exceedingly wild that I was compelled to have them shot. The horns of one of these are deposited in the museum of the Royal College of Surgeons; and a much larger pair are preserved in the collection of Lord Valentia, at Arley Hall. The largest horn of these animals I ever met with measured in length nearly four feet, and its circumference at the base was twenty-one inches."

THE URUS.

Bos Urus. Linn.

We shall now proceed to describe the varieties of wild oxen, which have erroneously been considered by many naturalists as distinct kinds. The urus, or wild bull, chiefly occupies the frigid and the temperate zones, and is not so much dispersed towards the south: he is generally found in the province of Lithuania, and is very remarkable for his size and strength. Cæsar has described him as but little inferior to the elephant in stature, and resembling the bull in shape, figure, and colour. He adds, that they are very swift and fierce, with horns much larger than, and very different from, those of the common bull. Mentzelius also informs us, "that it is a vast and terrible species of wild bull, common in Livonia, &c.; and that when killed, its brain is found scented like musk." This animal has a curled, shaggy coat, quite black, except a stripe mixed with white running from the neck to the tail; the hair is constantly long on the fore quarters, neck, and forehead. On the latter is placed a garland of black curled hair, and some of them have been found to have beards of the same. The neck is elevated, strong, thick, and short, and the tail long. The skin has the odour of musk. The eyes are red and fiery; the horns are thick, short, and strong. The female is not so large as the male, although she far exceeds

J. Le Keux fc.

BISON.

J. Le Keux fc.

ZEBU.

the size of our largest bull, and is of a black colour. Her udder and teats are so small that they can scarcely be perceived. Upon the whole, however, we find that this animal resembles the tame bull very exactly, except in the above peculiarities, which his wildness, or the richness of his pasture, may easily account for.

THE BISON, OR BONASSUS.

Bos Taurus. Linn.

This animal is distinguished from the other species of the ox kind by having a lump between the shoulders, a loose dewlap, and round horns curving externally; and it is to this species that several races of cattle owe their derivation. In the wild state the bison is known, not only by his bulk, but by the superior depth and shagginess of the hair, which, about the head, neck, and shoulders, is sometimes so long as to touch the ground: his horns are rather short, sharp-pointed, extremely strong, and situated at a distance from each other at their basis, like those of the common bull. His colour is of a dark, blackish brown, but sometimes of a rufous brown; his eyes are large and fierce, his limbs very strong, and his whole aspect is extremely savage and gloomy. The lump between the shoulders is almost as large as that of a camel, weighing from 40 to 50 pounds; it is covered with hair, and is considered a very great delicacy by the bison hunters.

The principal European regions where this animal is now found are the marshy forests of Poland, the Carpathian mountains, and Lithuania. Its principal Asiatic residence is in the vicinity of Mount Caucasus; but it is also found in several other parts of Asia, and throughout Africa, from Mount Atlas to the Cape of Good Hope.

At Malabar, Abyssinia, and Madagascar, where the meadows are naturally spacious and fertile, the bisons are

of a prodigious size; while in Africa and Arabia Petræa, where the land is dry, they are small, and of the zebu kind.

In some of these countries, where they are domesticated, they are found to have smooth, soft hair, and are very nimble of foot. The bison breed is also more expert and docile than our cattle; many of them, when they carry burdens, bend their knees to take them up and set them down: they are treated, therefore, by the natives of those countries with a degree of tenderness and care equal to their utility; and the respect for them in India has degenerated even into blind adoration. But it is among the Hottentots that these animals are chiefly esteemed for their services, they being, in fact, their domestics, and the companions of their pleasures and fatigues; for these oxen are at once the Hottentot's protectors and servants, and assist him in attending his flocks, and guarding them against every invader. While the sheep are grazing, the faithful *backely*, as this kind of oxen is called, stands and grazes beside them. Still attentive, however, to the looks of its master, the backely flies round the field, obliges the herds of sheep that are straying to keep within proper limits, and shews no mercy to robbers, nor even strangers, who attempt to plunder. But it is not the plunderers of the flock alone, but even the enemies of the nation, that these backelies are taught to combat. Every army of Hottentots is furnished with a proper herd of these creatures, which are let loose against the enemy. Being thus sent forward, they overturn all before them; they strike down with their horns, and trample with their feet, every one who attempts to oppose them; and thus often procure their masters an easy victory, even before they have begun to strike a blow. An animal so serviceable is, as may be supposed, not without its reward. The backely lives in the same cottage with its master, and by long habit gains an affection for him; for in proportion as the man approaches to the brute, so the brute seems to attain even to the same share of human sagacity. The Hottentot and his

backely thus mutually assist each other; and when the latter happens to die, a new one is chosen to succeed him by a council of the old men of the village. The new backely is then joined with one of the veterans of his own kind, from whom he learns his art, becomes social and diligent, and is taken for life into human friendship and protection.

It is dangerous to pursue the bison when wild, except in forests abounding with trees large enough to conceal the hunters. He is generally taken in pits covered with branches of trees and grass, on the opposite side of which the hunters tempt the animal to pursue them; and the enraged creature running towards them, falls into the trap prepared for it, and is overpowered and slain.

The sagacity which they exhibit in defending themselves against the attacks of wolves is admirable: when they scent the approach of a drove of those ravenous creatures, the herd throws itself into the form of a circle, having the weakest in the middle, and the strongest ranged on the outside—thus presenting an impenetrable front of horns.

The uses of the bison when dead are various: powder-flasks are made of the horns; the skins form an excellent buff leather, and when dressed with the hair on serve the Indians for clothes and shoes. The Europeans of Louisiana use them for blankets, and find them light, warm, and soft. The flesh is used as food. The bulls, when fat, frequently yield 150 pounds weight of tallow each, which forms a considerable article of commerce. The hair is spun into gloves, stockings, and garters, which are very strong, and look as well as those made of the finest sheep's wool. Governor Pownal assures us, that there may be manufactured from it a most luxurious kind of clothing.

THE AMERICAN BISON.

Bos Americanus. Linn. *Bison d'Amérique.* Buffon.

The American bison differs in no respect from the European, further than that he is more shaggy, and has a greater protuberance between the shoulders; the fore parts of the body are very thick and strong, but the hinder ones are comparatively weak. The colour of the American bison is of a reddish brown; the hair, in winter, is of a woolly nature, falling down over the eyes, head, and whole fore parts of the body. He is found in the regions 60° west of Hudson's Bay, and this is its most northern residence. From thence these animals occur in large droves as low as Cibola, in lat. 33°, a little north of California; also in the province of Mivera, in New Mexico; and immediately to the south of these parts the species seems to disappear. They also inhabit Canada, west of the lakes, and more abundantly the rich savannas bordering the Mississippi; also the large rivers that flow into it from the west, in Upper Louisiana, where innumerable herds of them are seen, intermixed with those of stags and deer, feeding chiefly in the morning and evening, and retiring into the shade of the lofty rocks bordering the rivers during the heat of the day. They are very wild, and fly from mankind; but if wounded, they become furious, and pursue their enemy.

The chase of these animals constitutes a favourite diversion of the Indians, who use the flesh as food, and who kill them either by pit-falls, by guns, or by gradually driving them into a small space, and then setting fire to the grass round the place where a herd is feeding. They are greatly terrified by fire; and when crowding together to avoid it, are slaughtered by the Indians without any personal hazard.

On such occasions, it is said, that 1500 or 2000 have been destroyed at one time.

These animals are so amazingly strong, that when they flee through the woods from a pursuer, they frequently brush down trees as thick as a man's arm; and be the snow ever so deep, such is their strength and agility, that they are able to plunge through it much faster than the swiftest Indians can run in snow-shoes. "To this," says Mr. Hearn, "I have many times been an eye-witness. I once had the vanity to think that I could have kept pace with them; but though I was at the time celebrated for running fleetly in snow-shoes, I soon found that I was no match for the bisons, notwithstanding they were then plunging through such deep snow, that their bellies made a trench as large as if many heavy sacks had been hauled through it."

In Louisiana the men mount on horseback, each with a sharp crescent-pointed spear in his hand. They approach with the wind; and as soon as the animals smell them, they instantly seek to escape: the majority of the bisons are, at a certain time of the year, so fat and unwieldy as easily to be enticed to slacken their pace. As soon as the men overtake them, they endeavour to strike the spear just above the ham, in such a manner as to cut through the tendons, and render them afterwards an easy prey.

THE ZEBU.

This name is given by Buffon to the Barbary ox, which is a variety of the bison of some writers, and of the camel of others. This species resembles the Indian ox; but is so extremely small, that, in some parts of India, it scarcely exceeds the size of a large dog. In colour it differs, like other cattle, being either gray, brown, black, white, &c., or variously spotted.

Indeed, these hunched oxen vary considerably more than

ours in the colour of their hair and the figure of their horns. The most beautiful are, like the oxen of Lombardy, all white. Some are destitute of horns, others have them very elevated, and others, again, so bent down as to be almost pendent. It appears, therefore, that we must divide the hunched oxen, or bisons, into two kinds, viz. the large and the small, to which latter belongs the zebu. They are both found nearly in the same climate,—are equally mild and easily managed when domesticated. Both have soft hair; and the protuberance or hump on their backs, or over the shoulders, which is nothing more than a wen or fleshy tumour, is eaten as a delicacy, and is as tender as the tongue of an ox.

The oxen of India are made use of in travelling as substitutes for horses. Instead of a bit, a small cord is passed through the cartilage of the nostrils, which is tied to a larger cord, and serves as a bridle. They are saddled like horses; and when goaded on move very briskly. They are likewise used in drawing chariots and carts. For the former purpose white oxen are in great esteem, and much admired. They will perform journeys of sixty days, at the rate of from twelve to fifteen leagues a day; and their travelling pace is generally a trot.

THE BUFFALO.

Bos Bubalus. Linn. *Le Buffle.* Buff.

Although the buffalo is now common in Greece, and tame in Italy, it was not known to either the ancient Greeks or Romans; for this animal had no name in their language.

In its general appearance, the buffalo is so nearly allied to the common ox, that, without an attentive examination, it might readily pass for a variety of the same species; yet, notwithstanding they have so great a resemblance, they are more distinct in their nature than the ass and the horse. The buffalo differs, however, in the form of its horns, and in some points relative to its internal structure, and is somewhat

R. Sands. fc.

BUFFALO.

R. Sands fc.

MUSK OX.

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superior in size to our common ox: the head is larger in proportion; he possesses a higher forehead and a longer muzzle, yet, at the same time, broad and square. But it is principally the form of the horns which distinguishes this animal: they are large, of a compressed or depressed form, with a sharp exterior edge; they are also nearly straight for a considerable length from their base, and then curve upward. The general colour of the animal is blackish, except the forehead and the tip of the tail, which are of a dusky white.

Buffon says, "his flesh is black and hard, and not only disagreeable to the taste, but repugnant to the smell. The milk of the female is not so good as that of the cow, but she yields a greater quantity. In hot countries almost all the cheese is made of buffaloes' milk. The flesh of the young buffaloes, though killed during the suckling time, is not at all better. The hide alone is of more value than all the rest of the animal, whose tongue is the only part that is fit to be eaten."

Goldsmith, in his "Animated Nature," also records the same worthless qualities as belonging to the flesh of the baffalo; while others, on the contrary, extol it as excellent food.

Bingley, in his "Animal Biography," gives the following account of the buffalo:—"The flesh is said to be excellent eating; and is so free from any disagreeable smell or taste, that it nearly resembles beef. The flesh of the cows, when some time gone with young, is esteemed the finest; and the young calves are reckoned by the Americans the greatest possible delicacy."

Amidst these conflicting statements, we have considered it a duty we owe our readers to endeavour to set this discrepancy at rest; and we decidedly agree in stating, that the flesh of the buffalo is excellent food, as the testimonies of those persons who have actually killed and partaken of their flesh concur in describing it as being nearly allied in quality to our ox beef. Their hide is firm, light, and almost

impenetrable. As these animals are larger and stronger than oxen, they are very serviceable; they are made to draw, but not to carry burdens; and are led by means of a ring passed through their nose. Two buffaloes harnessed, or rather chained, to a carriage, will draw as much as four strong horses. As they carry their necks and heads low, they employ the whole weight of their body in drawing, and their mass greatly surpasses that of a labouring horse.

These animals are natives of the warmer parts of India and Africa, but have been introduced into some of the European countries, and may be said to be now perfectly naturalised. They constitute a considerable portion of the riches of the poor in Italy, where they are employed in agriculture; and their milk is used for domestic purposes. In Western Hindostan they are quite as common as our cattle are here. They delight in wallowing in the mire, and are considered to be the filthiest of the cattle tribe. They also swim over the broadest rivers; and they have been known, during inundations, to dive to the depth of ten or twelve feet, in order to force up the aquatic plants with their horns, which they eat while swimming.

Buffaloes are domesticated in the East, as well as in Italy. It is curious to observe, at night and morning, large herds of them crossing the Tigris and the Euphrates. We are informed that they proceed wedged together, the herdsman mounted on one, or sometimes standing upright, at other times couching himself down; and should any of the external ones get out of their proper position, he steps lightly from back to back to drive them along.

THE CAPE BUFFALO.

Bos Cafer. Linn. *Cape Ox.* Pennant.

This animal differs but little from the preceding, except in the fore parts being covered with long, coarse, and

black hair. The horns are thick and rugged at the base, sometimes measuring three feet in length, and lying so flat as to cover almost all the top of the head. The ears are large and slouching; the body and limbs are very thick and muscular; and the animal is above eight feet in length and six in height: his head hangs down; and, altogether, he exhibits a fierce and malevolent aspect. This buffalo is frequently the object of chase, both to the natives of southern Africa and Europeans in Caffraria; the former of whom kill them by means of javelins, which they use with great dexterity. When a Caffre has discovered the place where several buffaloes are collected together, he blows a pipe, with which he is furnished for those occasions, made of the thigh-bone of a sheep, and whose shrill sound may be heard at a great distance. Immediately upon this signal being heard by his comrades, they hasten to the spot and surround the animals, which they are very careful to approach by degrees, lest they should alarm them. When they have reached within a convenient distance, they dart their javelins at them; and this is generally accomplished with such dexterity and unerring aim, that out of ten or twelve it seldom occurs that one of them escapes. When the chase is over, each man carries away his share of the game. The horns and skin of the buffalo are very valuable, and much esteemed by cutlers and other artificers; and the hide of the Cape buffalo is so tough as often to resist the force of a leaden musket-ball. The hunters consequently use a ball composed of lead and tin, and even these sometimes fail of effect.

The Cape buffalo is treacherous in the extreme; he frequently conceals himself among the trees, and stands lurking there till some unfortunate passenger comes by, when he suddenly rushes out into the road and attacks the traveller, who has no chance of escaping except by climbing up a tree, should he be fortunate enough to be near one. Flight is of no avail, for he is speedily over-

taken by the furious beast, which, not contented with throwing him down and killing him, stands over him for a long time afterwards, trampling him with his hoofs and crushing him with his knees; and he not only mangles and tears the body to pieces with his horns and teeth, but likewise strips off the skin, by licking it with his tongue. Nor does he perform all this at once, but often retires to some distance from the body, and returns with savage ferocity to gratify afresh his cruel disposition.

Some Europeans at the Cape once chased a buffalo, and having driven him into a narrow place, he turned round, and instantly pushed at one of his pursuers, who had a red waistcoat. To save his life, the man ran to the water, plunged in, and swam off. The animal followed him so closely that the poor fellow had no alternative but that of diving: he dipped over head, and the buffalo losing sight of him, swam on towards the opposite shore, three miles distant, and, as was supposed, would have reached it, had he not been shot by a gun from a ship lying at a little distance.

THE MUSK OX.

Bos Moschatus. Linn. *Musk Ox.* Pennant.

We are indebted to the labours of Mr. Pennant for the first accurate description of this species.

It seems to be a very local animal, and is a native of North America, where it was first discovered in the tract between Churchill River and that of the Seals, to the west of Hudson's Bay. It is also frequently met with between 66° and 75° north latitude, which is as far as any Indians are supposed to reside.

This animal is but of small size, when compared with some of the preceding species. In the male the hair is of a dusky red colour, extremely fine, and sometimes so long as to trail on the ground—thus rendering the animal an

almost shapeless mass, with little distinction of either head or tail; the legs are very short, and the shoulders rise into a lump. The tail is a mere stump, of only three inches in length, with very long hairs. Underneath the hair is found a beautiful short cineritious-coloured wool, which is asserted to be much superior to silk, when manufactured into stockings, and other articles of wearing apparel. The horns are closely united at the base, bending inwards and downwards, but turning outwards towards the tips, which are very sharp; near the base they measure two feet in girth, but are only two feet in length when measured along the curvature: the weight of a pair, separated from the head, has been found to exceed sixty pounds.

The musk cow differs from the male in having the horns much smaller, and placed at the distance of nine inches from each other at the base; they are seated on the sides of the head, are of a whitish colour, about thirteen inches long by eight inches in circumference at the base; and in their curvature resemble those of the bull. The ears are erect, three inches long, somewhat sharp-pointed, and thickly lined with dusky hair, marked with a white stripe. The colour of the female is in general black, with whitish legs; and between the horns there is a bed of white hair, intermixed with a kind of rust colour. Along the back runs a dusky mane, or elevated ridge of hair, on the middle of which is an oblong patch of pure white. Here the hair is much shorter than on the other parts, not exceeding three inches in length, and of a pale brown hue between the roots. The hair on the body appears to be of two kinds; the longest, measuring seventeen inches, is very fine, glossy, and, when carefully examined, is found to be of a flattened appearance. The hair, which is black, constitutes the general covering of the animal. Mr. Jeremie says, that stockings made of it are finer than silk. The hair between the horns, as well as that on the back, is, on the contrary, of a round form, and far finer than any human hair; while that of the white patch is

somewhat of a woolly nature. Beneath every part of the long hair grows, as in the bull, a most exquisitely fine ash-coloured wool, superior in quality, perhaps, to that of any other animal.

These animals emit a musky scent, from which circumstance they derive their name. Their flesh also tastes very strong of musk; and the heart, in particular, is said to be so strongly impregnated with the odour, as scarcely to be eatable. The flesh, however, is very wholesome, and has, on many occasions, been found to be a speedy restorative to sickly crews who have made it their food. They delight to inhabit rocky and barren mountains, seldom frequenting the wooded parts of the country. They are very nimble, and display great activity in climbing rocks.

These animals are destroyed by the Indians on account of the meat and skins, which, from the superior warmth of the latter, makes them a most acceptable covering in these high latitudes.

The Esquimaux convert the skin covering the tail into caps, which are so contrived, that the long hair falling over their faces, defends them from the bites of the musquitos. There is a beautiful specimen of this animal in the British Museum, from which our drawing has been taken.

THE ARNEE.

Bos Arnee, KERR.

This is by far the largest animal of the cattle tribe that has hitherto been discovered, its usual height being from twelve to fifteen feet from the hoofs to the top of the horns. It is an inhabitant of various parts of India north of Bengal, and is seldom seen in the European settlements. The horns of the arnee are long, erect, and semilunar, flattened and annularly wrinkled, with smooth, round, approaching points. They are very bold, fierce, and courageous. Ac-

cording to Dr. Anderson, they are chiefly kept for parade by the native princes, and are known by the name of fighting bullocks. They are said to partake of the form of the horse, the bull, and the deer. They are of a black colour, quite smooth, and without either protuberance or mane.

THE YAK, OR SARBUC.

Bos Grunniens, Linn. *Le Yak, ou Bouffle à queue de Cheval*, Buff.

This is the grunting ox of Tartary and Thibet, where it is domesticated; and, from having the hump between the shoulders, is concluded to be connected to the bison species. But the difference between it and the bison consists in the grunting noise it makes, which resembles that of the hog, rather than the lowing so peculiar to the ox tribe: it also varies in one or two other particulars. The whole body is covered with very long hair, which hangs below the knees, and is mostly of a black colour, except on the ridge of the back and mane, which is white. The horns are short, upright, sharp, and slender at the extremities. The tail resembles that of the horse, but is white and bushy. It butts or strikes with its head like the goat; and in its wild state is extremely unruly. The tail is held in great estimation by many classes of society for various purposes of ornament. The Orientals hold also in high esteem a large kind of bezoar which is sometimes found in this animal's stomach. These oxen vary in colour as well as in the length and form of the horns. Those with white tails are most esteemed; and it sometimes happens that the horns have the appearance of ivory. At their birth, the calves are covered with a strong woolly hair, nearly resembling that of a water-spaniel; and in about three months they begin to acquire the long hair of the throat, lower parts, and tail. From the observations of Dr. Pallas, the yak appears to approach nearer to the buffalo than to any other species.

LOOSE-HORNED OX.

This species of the ox kind is found only in Abyssinia and Madagascar; and is distinguished from the other kinds by having the ears pendulous, and the horns only attached to the skin, so as to hang down on each side.

THE BOURY

Is also a native of Madagascar and the adjacent islands, and is of a snow-white colour, and of the size of a camel, with a protuberance on the back.

TINIAN OX.

This, which is a native of the island of Tinian, is of a white colour, with black ears.

THE GOUR.

Bos Gour, TRAIL.

We now come to describe two varieties of this tribe not known to or noticed by Linnæus; and it is to Dr. Trail we are indebted for our information of the bos gour,* which is quite distinct from the arnee, for whom it has a great antipathy. The size of this species and its vertebræ are its most striking peculiarities: the length of one not fully grown was nearly twelve feet, and the height nearly six. The form of the gour

* The gour of India is a very different animal from the gour of Persia: the latter is the wild ass.

is not so lengthened as that of the arnee. Its back is arched, and forms a uniform curve. It has a remarkable ridge, formed by the bones of the dorsal vertebræ, extending from the last cervical to beyond the middle of the last dorsal vertebra: this is gradually lost in the outline of the back, and bears no resemblance to the bunch on many other species of the ox genus. The gour also differs from them by having no dewlap.

Its colour is a very deep brownish black, excepting a tuft of curling dirty-white hair between the horns, and rings of the same colour above the hoofs. The hair is very short and sleek; the tail is bushy. Their cry is a short bellow, which may be somewhat imitated by repeating the cry *ugh, ugh*. The gour will not live in captivity; and if taken when young, the calf soon droops and dies. The period of gestation is about twelve months, terminating about August. The bull calf, for the first year, is called by the natives *purórah;* the female calf, *paréeah;* and the cow, *goùrin.*

The outline of the face is more curved than that of our domestic bull. The horns are short and thick at the base, considerably curved at the tip, slightly compressed at one side, and in the natural state are rough. They are capable of a good polish, when they are of a horn-gray colour, with solid tips. General Hardwicke presented a pair to the Zoological Society, measuring as follows:

	Inches.
Between the tips	15
Greatest diameter of the curve	25
Below the curve	3
Greatest breadth of the forehead	12½
Circumference of the horn at the base	13½
Another specimen	15½
From the base of the horn to the tip round the outer curve	26
Another specimen	28

The limbs have more the form of the deer than any of the bovine genus: they give the idea, however, of great strength,

combined with fleetness; and the animal canters with great velocity. The bos gour is found in several mountainous parts of central India, but chiefly at Migu Pát, or Mine Paut,* a high insulated mountain, with a tabular summit, in the province of Sergojah, in South Bahar.

THE GAYAL.

Bos Bubalus Guavera, PENNANT. *Bos Gavæus*, COLEBROOKE.

This animal is similar in size to the English bull, with short horns, but distant at their bases. The forehead is broad, and crowned with a tuft of light-coloured hair. The eyes are similar to the common ox; but the ears are larger, broader, and blunter, than those of that animal. The neck is very slender near the head, at some distance from which the dewlap commences; but this is not so deep as in the zebu. Like the gour, this creature has a bony ridge on his back, giving an appearance of clumsiness to the chest, which, although narrow, is very deep. The sternum is covered by a continuation of the dewlap, and the tail with short hair, except near the end, where it terminates in a tuft, as in the common ox, but is very short; and all the rest of the body has a thick coat of short hair, which on the dewlap is lengthened out into a mane. The general colour of this species is brown, in various shades. Some parts of the legs and belly are usually white; but in different individuals these vary considerably.

The cry of the gayal is like that of the buffalo, but shriller and not so loud as that of the European ox. This animal has a dull, heavy appearance, but exhibits great strength and activity. In old age he frequently becomes blind. He is gentle, and even on his native hills is not considered a dangerous enemy, never standing the approach of man, much less

* Pât, or Paut, in Hindûstanee, signifies table-land.

bearing his attack. The wild gayals are hunted by the Cucis Indians for the sake of their flesh.

The gayal ranges in the thickest forests, where he browses morning and evening on the tender shoots and leaves of shrubs, seldom feeding on grass when these are to be procured. They generally live to the age of twenty years.

The gayal cow gives but little milk, but it is of a remarkably rich quality, not unlike the cream from that of other animals. The Cucis Indians, who domesticate this animal, make no use of it, but rear it only for the flesh and hides. The former is in such high estimation, that no solemn festival is held without one or more being killed, according to the solemnity of the occasion.

General Hardwicke is of opinion that there exists more than one variety of this species. The provinces of Chittagong and Sylhet produce the wild, or, as the natives term it, the *asseel gayal*, and the domesticated one. The former is considered untameable, and is so extremely fierce that it is not to be secured alive. It rarely quits the mountainous tract of the south-east frontier, and never mixes with the *gobbah*, or *village gayal* of the plains. The General succeeded in obtaining the head and skin of an asseel gayal, which are now deposited in the East India Company's Museum in Leadenhall Street.

According to this gentleman's opinion, there is a variety differing from the above, a male and female of which were in the Governor-General's park at Barrackpore, varying, *first*, in size, being much larger than the domestic one; *secondly*, in the largeness of the dewlap, which is deeper and more undulated than in either the wild or tame species; *thirdly*, in the form and dimensions of their horns.

Their length is generally about eight or nine feet. The Hindoos venerate this animal as much as their cow, and will not destroy it.

The domesticated gayals roam at large during the day through the forest in the neighbourhood of villages; but as evening approaches, they all return home of their own

accord; the young gayal being early taught this habit, by being fed regularly with salt every night, of which they are very fond: and from the occasional continuance of this practice, as he grows up, the attachment of the gayal to his native village becomes so strong, that when the Cucis migrate from it, they are obliged to set fire to the huts to prevent their returning from their new residence, to which they soon become attached by the same means. The wild gayal steals out at night from the forests and feeds in the rice-fields bordering on the hills. The Cucis do not feed their domestic gayals on grain, but allow them the shrubs and grass they may find in the plains.

We might mention several other varieties, but the above are the most striking. Almost every nation has one or more particular species of domestic cattle, in which many unimportant peculiarities might be noticed.

Having thus gone through the history of these animals, it may be proper to observe, that no names have been more indiscriminately used than those of the bull, the urus, the bison, and the buffalo. It, therefore, becomes such as would have distinct ideas of each to be careful in distinguishing the one from the other. The urus,* whether of the enormous

* It is highly probable that the sacred bull so often named in ancient history was of this species. We learn from Scripture, that after the deluge Noah became a husbandman; and as the breaking up of the earth was effected by the strength of the ox, that animal therefore became the emblem of husbandry, and was thought to be a proper object to keep Noah, and his instructions in husbandry, in recollection; for to him also was attributed the invention of the plough. This, among a people absorbed in ignorance, soon produced the actual worship of the animal,—as in order to retain their power and influence over the people, the priests pretended that Noah, who was so fond of oxen during his life, took up his abode in an ox after his death. It was their province to find him out by certain marks; the ox was to be a black one, having a white spot on the forehead, and another like a crescent or new moon on his side. It was easy for them to prepare one accordingly; and when an old one died, they produced a new one,

kind of Lithuania, or the smaller race in Spain, whether with long or short horns, whether with or without long hair

which was always enthusiastically received by the people, they being rejoiced to have their god with them again. Thus from time to time was this worship continued. Similar to this is the tradition of the god Apis: he was worshipped by the Egyptians under the form of an ox; and some say that Isis and Osiris are the deities worshipped under this name, because during their reign they taught the Egyptians agriculture. They also believed that the soul of Osiris had actually departed into an ox, where it wished to dwell. The festival of Apis lasted seven days: the chosen ox was led in solemn procession by the priests, and every one was anxious to receive him into his house; and it was believed that children who smelt his breath received the knowledge of futurity. The ox was conducted with much ceremony to the banks of the Nile; and if he had lived to the age which their sacred books prescribed, they drowned him in the river, embalmed his body, and buried him in solemn state in the city of Memphis. After his death, which sometimes was natural, the greatest lamentations were made throughout Egypt, as if Osiris was just dead; and as a sign of the deepest mourning, it was usual for the priests to shave their heads. This continued till another ox appeared with proper characteristics to succeed as the deity, when the greatest acclamations were made, as if Osiris had returned to life. This ox, which was found to represent Apis, was left in the city of the Nile for forty days before he was carried to Memphis; during which time women only were permitted to appear before him; and this they did, according to their superstitious rites, in a wanton and indecent manner. There was also an ox worshipped at Heliopolis under the name of Mnevis. Some, however, suppose that he was Osiris; but others maintain that the Apis of Memphis was sacred to Osiris, and that of Mnevis to Isis.

"The number of bronze bulls with lunette horns, which have been dug up at Babylon, leave little room to doubt that a festival, and other sacred rites of Asteroth Kornaim, were there observed, as well as in Egypt and Canaan: either (as afterwards among the Jews) a monthly feast in honour of the new moon, or an annual celebration of the festival of the first new moon, when the year opened with Sol and Luna in Taurus. * * *

"Of the bronze bulls of Babylon, which I have mentioned above, you may remember presenting one to Sir William Ouseley; and that another, exactly like it, remains in my possession. They have lunette horns; and, what is equally remarkable, they have the buffalo hump of the cattle of the Ganges, which seems to corroborate Mr. Payne Knight's hypothesis of the original Taurus being the urus or wild bull of northern Asia."—LANDSEER'S *Sabean Researches.*

on the forehead, is every way the same with what our common breed were before they were taken from the forest and reduced to a state of servitude. The bison, and all its varieties, which are known by a hump between the shoulders, is also to be ranked in the same class. This animal, whether with crooked or straight horns, or altogether without them, whether it be large or diminutive, whatever be its colour, or whatever the length of its hair, whether called the bonassus by some, or the bubalus by others, is but a variety of the ox kind, with whom it breeds, and with whom, consequently, it has the closest connexion. The particular kind of noise also which some of them are known to make, which rather resembles grunting than bellowing or lowing, is but a savage tone which many wild animals have, and yet lose when brought into a state of tameness. For these reasons Buffon is of opinion, that the zebu, or little African ox, and the grunting, or Tartarian ox, are but different races of the bison; as the shape of the horns, the length of the hair, or the hump on the shoulders, are never properly characteristic marks of any animal, but are found to vary with climate, food, and cultivation; for in the course of a few generations, when they are taken under the care of man, the hump wears away, and scarcely any vestiges of savage fierceness are found to remain; and however wild the calves are which are taken from the dam in a savage state, either in Africa or Asia, they soon become humble, patient, and familiar. The buffalo, though shaped much more like the ox, is a *distinct kind* by itself, that never mixes with any of the former. The female produces but one at a birth, and the time of its gestation is twelve months, whereas that of the cow is only nine. Another striking characteristic difference between the buffalo and the common oxen is, that it testifies an aversion to the latter; and though bred under the same roof, or feeding in the same pasture, has always kept separate, and *makes a distinct race in all parts of the world;* for it is affirmed, that cows will not suckle young buffaloes, and

the female buffaloes refuse the same office to the other calves.

These *two* kinds are considered by Buffon to be the only real varieties of the ox species, which some naturalists have extended to eight or ten; but as no mention is made either by that writer or Linnæus of the *gour* or the *gayal*, these animals appear to have escaped their attention, or to have been quite unknown to them; but from their nature, and the peculiar structure of their vertebræ, we consider that they may be classed as a *third* variety of the ox species.

THE SHEEP.

Ovis Aries, Linn. *La Brebis*, Buffon.

Those animals which take refuge under the protection of man, become, in the course of a few generations, indolent and helpless. Having lost the habit of self-defence, they seem to lose also the instincts of nature. In its present domestic state, the sheep is, of all animals, the most defenceless and inoffensive. With its liberty it seems to have been deprived of its swiftness and cunning; and what in the ass might rather be called patience, in the sheep appears to be stupidity. With no one quality to fit it for self-preservation, it makes vain efforts at all. Without swiftness, it endeavours to fly; and without strength, sometimes offers to oppose. But these feeble attempts rather incite than repress the insults of every enemy; and the dog follows the flock with greater delight upon seeing them flee, and attacks them with more fierceness upon their attempting resistance. They run together in flocks, rather with the hope of escaping danger in the crowd, than with the design of suppressing the attack by numbers. The sheep, therefore, were it exposed in its present domesticated state to struggle with its natural enemies of the forest, would soon be extirpated. Loaded with a thick fleece,

deprived of the defence of its horns, and rendered heavy, slow, and feeble, it can have no other safety than that which it finds in the protection afforded it by man. This animal is now, therefore, obliged to rely solely upon that subjection to which it originally owes its degradation.

Buffon considers, that, from the present defenceless nature of the sheep, its timidity, and inaptitude of form for flight from its enemies, it must from the earliest period have been under the immediate protection of man, or its species would, ere this, have been extinct, owing to the numerous enemies by which it is so constantly pursued.

But we are not to impute to nature the formation of an animal so utterly unprovided against its enemies, and so unfit for defence. The argali, or moufflon, which is the sheep in a savage state, is a bold, fleet creature, able to escape from the larger animals by its swiftness, or to oppose the smaller kinds by the arms it has received from nature. It is by education alone that the sheep has become the tardy, defenceless creature we find it. Every race of quadrupeds might easily be corrupted by the same process by which the sheep has been thus debilitated and depressed. While undisturbed, and properly supplied, none are yet found to set any bounds to their appetite. They all pursue their food while able, and continue to graze till they often die of disorders occasioned by too much fatness. But it is very different with them in a wild state of nature: in the forest they are surrounded by dangers, and alarmed by unceasing hostilities; they are often pursued from one tract of country to another, and spend a great part of their time in attempts to avoid their enemies. Thus constantly exercised, and continually practising all the arts of defence and escape, the animal at once preserves its life and native independence, together with its swiftness and the agility of its slender form. Buffon also says, that "the female will suffer her lamb to be taken away without shewing any signs of anger, or trying to defend it; nor, by the smallest difference in her bleating, expressing

the least degree of sorrow." This, however, is a mistaken notion, as our pages will hereafter testify.

In its servile state, the sheep certainly seems to be divested of nearly all inclinations of its own; and, with few exceptions, it appears the most stupid of animals. Every quadruped has a peculiar turn of countenance, a physiognomy, if we may so call it, that generally marks its nature. The sheep seems to have none of those traits that betoken either courage or cunning; its large eyes, separated from each other, its ears sticking out on each side, and its narrow nostrils, all testify the extreme simplicity of this creature; while the position of its horns also shew that nature designed it rather for flight than for combat. In its domestic state it appears a large mass of flesh, supported upon four small straight legs, ill fitted for carrying such a burden; its motions are awkward; it is easily fatigued, and often sinks under the weight of its own corpulency. In proportion as these marks of the transformation produced by breeding are more numerous, the animal becomes more helpless and stupid. Those that live on a more fertile pasture, and grow fat, become entirely feeble; those that want horns are found more dull and heavy than the rest; and those whose fleeces are longest and finest are most subject to a variety of disorders: in short, whatever changes have been wrought in this animal by domestication are entirely calculated for the advantage of man, and not for that of the creature itself. It might require a succession of ages before the sheep could be restored to its primitive state of activity, so as to become a match for its pursuers of the forest.

The goat, which it resembles in so many other respects, is much its superior. The one has its peculiar attachments, sees danger, and generally contrives to escape it; but the other is timid without a cause, and considers itself secure when real danger approaches. Nor is the sheep, when bred up tame in the house, and familiarised with its keepers, less obstinately absurd; from being dull and timid, it then

acquires a degree of pert familiarity; butts with its head, becomes mischievous, and shews itself every way unworthy of being singled out from the rest of the flock. Thus it seems rather formed for slavery than friendship, and framed more for the necessities than the amusements of mankind. Goldsmith says: "There is but one instance in which the sheep shews any attachment to its keeper; and that is seen rather on the continent than among us in Great Britain. What I allude to is, their following the sound of the shepherd's pipe. Before I had seen them trained in this manner, I had no conception of those descriptions, in the old pastoral poets, of the shepherd leading his flock from one country to another. As I had been used only to see these harmless creatures driven before their keepers, I supposed that all the rest was but invention; but in many parts of the Alps, and even some provinces of France, the shepherd and his pipe are still continued with true antique simplicity: the flock is regularly penned every evening to preserve them from the wolf; and the shepherd returns homeward at sunset, with his sheep following him, and seemingly pleased with the sound of the pipe, which is blown with a reed, and resembles the chanter of a bagpipe. In this manner, in those countries that still continue poor, the Arcadian life is preserved in all its former purity; but in those countries where a greater inequality of condition prevails, the shepherd is generally some poor wretch who attends a flock from which he is to derive no benefits, and only guards those luxuries which he is not to share."

But it is a fact, that the less sheep have to depend upon the care of the shepherd, the bolder the character they assume, when compared with that imbecility which pervades the domesticated races. Where sheep range on extensive mountains without control, a ram will boldly attack a single dog, and often prove victorious; but should the danger be more alarming, they have recourse to the united strength of the whole flock. On those occasions they form themselves

into a compact body, placing the females and the young behind, while the males take the foremost ranks, keeping closely by each other, presenting an armed front to their enemy; and when thus situated they cannot easily be attacked without danger of destruction to the assailant. Against the attacks of foxes or single dogs, when thus situated, they are perfectly secure.

Regardless of danger, a ram will sometimes engage a bull; and his forehead being much harder than that of any other animal, he seldom fails to conquer. By lowering his head, to toss his antagonist, the bull receives the stroke of the ram between his eyes, which usually brings him to the ground.

The liberty which sheep enjoy in the mountainous parts of Wales renders them very wild; and they do not collect in large flocks, but usually graze in parties of about ten or a dozen,—one of which is stationed at a distance from the rest, to give notice of any approaching danger. If this sentinel observe any person advancing within two or three hundred yards, he turns his face to him, keeps a watchful eye upon his movements, and allows him to approach as near as a hundred or eighty yards; but if the suspected enemy evince a design of coming nearer, the watchful guard gives the alarm to his comrades by a loud hiss or kind of whistle, which he repeats twice or thrice; when the whole party instantly start off with great agility, always betaking to the steepest and most inaccessible parts of the mountains.

In the selection of their food, few animals discover greater sagacity than the sheep; nor is their instinct in foreseeing the approach of a storm less remarkable: whole flocks have been buried under the snow for many days, in their endeavours to secure themselves under the shelter of some hill, and have afterwards been taken out without material injury. It is thus beautifully described by Thomson: —

——————— "Oft the whirlwind's wing
Sweeps up the burthen of whole wintry plains
At one wide waft; and o'er the hapless flocks,
Hid in the hollow of two neighbouring hills,
The billowy tempest whelms."

They perseveringly follow their leader wherever he goes; but if, in case of sudden alarm, any one of the flock runs forward to escape, and thus takes the lead, the rest generally follow him, regardless of any obstruction.

Of this singular disposition, Dr. Anderson informs us that he once witnessed an instance in the town of Liverpool. A butcher's boy was driving about twenty fat wethers through the town; but they ran down a street, along which he did not want them to go. He observed a scavenger at work with his broom a little way before them, and called out loudly for him to stop the sheep. The man accordingly did what he could to turn them back, running from side to side, always opposing himself to their passage, and brandishing his broom with great dexterity; but the sheep, much agitated, pressed forward; and at last one of them came right up to the man, who, fearing it was about to jump over his head whilst he was stooping, grasped the short broomstick in both hands, and held it over his head. He stood for a few seconds in this position, when the sheep made a spring, and jumped fairly over him, without touching the broom. The first had no sooner cleared this impediment than another followed, and another, in such quick succession, that the man, perfectly confounded, seemed to lose all recollection, and stood in the same attitude till the whole had jumped over him, not one of them attempting to pass on either side, though the street was quite clear. As this took place during wet weather, the man was entirely bespattered over with dirt before they had all passed; and it is impossible to conceive a more ludicrous appearance than the poor fellow made on the occasion.

Of the domesticated kinds to be found in different parts

of the world, besides those which are common in Europe, the first variety we shall notice, after those of Great Britain and Spain, is the Tartarian or Guinea sheep, which is generally found in all tropical climates, both of Africa and the East Indies; the second variety of this animal is met with in Iceland, Muscovy, and the coldest climates of the north; the third is that of the sheep called *strepsicheros*, or the Wallachian sheep,—which is a native of the islands of the Archipelago; and the last variety is that of the broad-tailed sheep, so common in Arabia, Tartary, Persia, Barbary, Syria, and Egypt.

Such are the principal varieties of this animal which have been reduced into a state of domestic servitude. These are all capable of producing among each other: all the peculiarities of their form have been made by climate and breeding, and none of them seem sufficiently independent to live in a state of savage nature; they are, therefore, to be considered as a degenerate race, formed by the hand of man, and propagated merely for his benefit. At the same time, while man thus cultivates the domestic kinds, he drives away and destroys the savage races, which are less beneficial, and more headstrong. These, therefore, are to be found in but very small number, and in the most uncultivated countries, where they have been able to subsist by their native swiftness and strength. It is in the more uncultivated parts of Greece, Sardinia, Corsica, and particularly in the deserts of Tartary, that the argali, or moufflon, is to be found, which, as before observed, bears all the marks of being the primitive race, and which has been actually known to breed with the domestic animal.

The sheep brings forth one or two at a time, and sometimes three or four. The first lamb of an ewe is generally pot-bellied, short and thick, and of less value than those of the second or third birth, the third being supposed to be the best of all. They bear their young twenty-three weeks; and

by being housed they bring forth at any time of the year. In warm climates they produce twice a year; but in England and France, and in colder countries, never more than once, except the Dorsetshire breed.

In its domestic state, this animal is too well known to require a detail of the arts which have been used to improve the breed. Indeed, in the eye of a naturalist every art which tends to render the creature more helpless and useless to itself may be considered rather as an injury than an improvement; and if we are to look for the sheep in its noblest state, we must seek for it in the African desert, or on the extensive plains of Siberia. Among the degenerate descendants of the wild sheep there have been so many changes wrought, as entirely to disguise the species, and often to mislead the observer. The variety is so great that scarcely any two countries exhibit the same kind, there being found a manifest difference in all, either in size, in the fleece, or in the shape of the horns.

In Italy and Spain there is a great variety in the races of sheep; but they should all be regarded as forming one species with our common sheep.

The woolly sheep, as it is seen among us, is found only in Europe and some of the temperate provinces of Asia. When transported into warmer countries, either into Florida or Guinea, it loses its wool, and becomes hairy and rough; it there also loses its fertility, and its flesh no longer has the same flavour. In the same manner, in very cold countries it has very coarse hair, and seems equally helpless and equally a stranger; it still requires the unceasing attention of mankind for its preservation; and, although it is found to subsist as well in Greenland as in Guinea, yet it seems a natural inhabitant of neither.

We must here observe the conformity in the influence of the climates of Spain and Chorasan, a province of Persia, upon the hair of goats, cats, and rabbits: it acts in the same

manner upon the wool of sheep, which is very fine in Spain, and still finer in Persia.

There are some places where almost all the sheep are black; and white ewes and rams will frequently produce spotted lambs. In France there are only white, black, and spotted; in Spain there is a reddish kind; and in Scotland there are some of a yellow colour: but these varieties are rather accidental than arising from the difference and variety of the breed, which are occasioned only by the influence of climate and the difference of nourishment.

In Poitou, Provence, the environs of Bayonne, and several other parts of France, there are some sheep which appear to be of a foreign race; and they are larger, stronger, and have a greater quantity of wool, than those of the common breed.

It does not, however, appear from any of the early writers that the breed of sheep was cultivated among the Britons for the sake of the wool; for the inhabitants of the inland parts of this island either went entirely naked, or were only clothed with skins; while those who lived on the sea-coasts, and were the most civilised, affected the manners of the Gauls, and wore, like them, a sort of garment made of coarse wool, called *brachæ;* but these they probably had from Gaul, there not being the least traces of manufactures among the Britons in the histories of those times.

This neglect of manufacture may be easily accounted for in an uncivilised nation, whose wants were few, and those easily satisfied; but it is more surprising, that after we had for a long period cultivated a breed of sheep whose fleeces were superior to those of other countries, we still neglected to promote a woollen manufacture at home. This valuable branch of business lay for a considerable time in foreign hands, and we were obliged to import the cloth manufactured from our own materials. There seems, indeed, to have been many unavailing efforts made by our monarchs to preserve both the wool and the manufacture of it among ourselves.

Henry the Second, by a patent granted to the weavers in London, directed, that if any cloth was found made of a mixture of Spanish wool, it should be burned by the mayor; yet so little did the weaving business advance, that Edward the Third was obliged to permit the importation of foreign cloth in the beginning of his reign; but soon after, by encouraging foreign artificers to settle in England, and to instruct the natives in their trade, the manufacture increased so greatly as to enable him to prohibit the wearing foreign cloth. Still, to shew the uncommercial genius of the people, the effects of this prohibition was checked by another law as prejudicial to trade as the former was salutary. This was an act of the same reign against exporting woollen goods manufactured at home, under heavy penalties, while the exportation of wool was not only allowed, but encouraged. This oversight was not soon rectified; for it appears, that on the alliance which Edward the Fourth made with the king of Arragon, he presented the latter with some ewes and rams of the Cotswold kind—a proof of their excellency, since they were thought acceptable to a monarch whose dominions were so noted for the fineness of the fleeces of the sheep.

In the first year of Richard the Third, and in the two succeeding reigns, our woollen manufacture received some improvements; but the origin of its prosperity is to be dated from the reign of Queen Elizabeth, when the tyranny of the Duke of Alva, in the Netherlands, drove numbers of artificers to seek refuge in this country, who were the founders of that immense manufacture we carry on at the present day.

No country produces such sheep as England, either with larger fleeces or better adapted to the purposes of the clothier. Those of Spain, indeed, are finer; and we usually require some of their wool to work up with our own; but the weight of a Spanish fleece is no way comparable to one of the Lincoln, Teeswater, or Warwickshire; and in those

counties it is no uncommon thing to give fifty guineas for a ram.

The Leicester, Hereford, and Cotswold downs are noted for producing sheep with remarkably fine fleeces. Suffolk also produces a valuable kind. The fleeces of the northern parts of this kingdom are inferior in fineness to those of the south; but still are of great value in different branches of our manufactures. The Yorkshire hills furnish the looms of that county with large quantities of wool; and that which is taken from the neck and shoulders is used (mixed with Spanish wool) in some of their finest cloths.

Wales yields but a coarse wool, yet it is of more extensive use than the finest Segovian fleeces,—for rich and poor, age and youth, health and infirmity, all confess the universal benefit of the manufacture of Welsh flannel.

The sheep of Ireland vary like those of Great Britain; those of the south and east being large, and their flesh rank, while those of the north and mountainous parts are small, and their flesh sweet. The fleeces in the same manner differ in degrees of value.

Scotland breeds a small kind, and their fleeces are coarse; but the breeds or varieties of sheep which are distributed over the globe are nearly endless: even in this country they are so very numerous as to render it difficult to describe them with any accuracy.

It has been stated by Lord Somerville, in his *System of the Board of Agriculture*, that all the breeds of sheep in this kingdom may be arranged under two classes; those which shear the short or clothing, and those which shear the long or combing, wool; and that the quality of the flesh in each class follows the character of the wool; the short-woolled sheep being close in the grain as to flesh, consequently heavy in the scale, and high-flavoured as to the taste: the polled long-woolled sheep more open and loose in the grain, and larger in size. By the author of the *Present State of*

Husbandry in Great Britain, they have been distributed under three general divisions, as below : —

1. The mountain breed,
2. The short-woolled breed
3. The long-woolled breed.

A still more clear and concise view of the various breeds of British sheep is afforded in the tabular form given by Mr. Culley, as enlarged and corrected by the author of the *General Treatise on Cattle,* and others ; which we here subjoin ; but there are a few other breeds to be met with in different districts besides those herein named.

Names of the Breeds.				Weight of Fleece.	Wethers per Quarter.	Age killed.
				lbs.	lbs.	Years.
1. Teeswater	No horns	White face and legs	Long wool	9	30	2
2. Lincoln	No horns	White face and legs	Long wool	11	25	2
3. New Leicester	No horns	White face and legs	Long wool (fine)	8	22	2
4. Cotswold	No horns	White face and legs	Long wool (fine)	9	24	2
5. Romney Marsh	No horns	White face and legs	Long wool (fine)	8	22	2
6. Dartmoor or Bramton	No horns	White face and legs	Long wool (fine)	9	25	2
7. Exmoor	Horned	White face and legs	Long wool (coarse)	6	16	$2\frac{1}{2}$
8. Heath	Horned	Black face and legs	Long wool (coarse)	3	15	$3\frac{1}{2}$
9. Hereford, Ryland	No horns	White face and legs	Short wool (fine)	$2\frac{1}{2}$	14	$3\frac{1}{2}$
10. Morf, Shropshire	Horned	Black and speckled	Short wool (fine)	$1\frac{3}{4}$	12	$3\frac{1}{2}$
11. Dorset	Horned	White and speckled	Short wool (fine)	$3\frac{1}{2}$	18	2
12. Wilts	Horned	White and speckled	Short (midd.)	3	20	3
13. Berks	No horns	Black and white	Long wool	7	18	$2\frac{1}{2}$
14. South Down	No horns	Speckled and white	Short wool	$2\frac{1}{2}$	18	2
15. Norfolk	Horned	Black and white	Short wool	2	18	$3\frac{1}{2}$
16. Herdwick	Horned	Speckled and white	Short wool	2	10	$4\frac{1}{2}$
17. Cheviot	No horns	White face and legs	Short wool	3	16	$4\frac{1}{2}$
18. Dun-faced	No horns	Dun face and legs	Short wool	$1\frac{1}{2}$	7	$4\frac{1}{2}$
19. Shetland	No horns	Various-coloured ditto	Fine cottony	$1\frac{3}{4}$	3	$4\frac{1}{2}$
20. Spanish	Rams horned	White	Short wool (super)	$3\frac{1}{2}$	14	$2\frac{1}{2}$
21. Ditto, cross			Ditto fine	$2\frac{3}{4}$	16	2

It is customary for sheep to be shorn every year; and in warm countries, where they apprehend no danger from leaving the animal quite bare, they do not shear the wool, but tear it off, and frequently obtain two crops, if we may so term them, in a year. In England, France, and colder climates, the fleece is shorn only once a year; and then part of the wool is permitted to remain, by way of preserving the animal from the weather. This operation is performed in the month of May, after the sheep have been well washed, to render the wool as clean as possible: the month of April is too cold, and if delayed to July, there would not be sufficient time for the wool to grow to preserve them from the cold of the following winter. The wool of the wether is generally better, and in greater abundance, than that of the ewe or ram. That on the neck and top of the back is much superior to that on the thighs, belly, tail, &c., and that taken from the bodies of dead or diseased sheep is by much the worst. White wool is preferable to gray, brown, or black; because in dying it will take any colour, and that which is smooth and sleek is better than the curled: it is even said, that sheep whose wool is curled are not so good as the others; and from the preference given to white wool, those lambs which are black or spotted are commonly led to slaughter.

After the ewes and lambs are shorn there is a great confusion and bleating, as the parent and its offspring cannot so readily distinguish each other. This embarrassment does not appear to arise so much from the difference of their appearance, in the loss of their fleece, as from a defect of that *notus odor*, or smell, by which they recognise each other, and which is now mingled with the strong scent of tar that is used in marking them. The brute creation certainly identify each other much more from the smell than by sight, as they are observed to appeal more to their noses than their eyes: but the voice in the present case is exerted to remedy the defect, and by this test the young

animals are soon able to recognise their parents, and the dams their offspring.

In dry and high grounds, where wild thyme and other odoriferous plants abound, the flesh of the sheep is of a much better quality than where they are fed on low plains and in humid valleys; unless near the sea-coast, where all the herbage having imbibed a degree of saltness, renders the mutton superior to that fed on any other pasture; it also gives a pleasing flavour to the milk, and adds to its quality. Nothing is more agreeable to the taste of these animals than salt, nor is there any thing more salutary for them when given in moderation: in some places, therefore, they put a bag of salt, or salt-stone, into the sheep-fold, which they will all lick by turns.

Water greatly contributes to fatten sheep when taken in great quantities, while nothing retards their fattening more than the heat of the sun; they should therefore be taken into the shade by nine o'clock in the morning, before the excessive heat comes on, and a little salt given them, to excite an inclination for water. In winter, nay, in all seasons, they may be fattened by keeping them in stables, and feeding them with flour of barley, oats, wheat, beans, &c. mixed with salt, to make them drink more frequently. But whatever mode is followed, it should be done quickly, and the sheep should be killed immediately, for they cannot be fattened twice; and they often die with diseases of the liver.

The increase or growth of this animal continues to advance till it is about three years old, when it is generally considered to be in the best state for the purposes of the grazier; though it is kept for producing wool till a much later period, sometimes even till five or six, and also with a view of breeding; but an early maturity is a property of much consequence, especially to the grazier.

The criterion of the age of sheep is the state of their teeth: these are divided into two kinds, the incisores and

the molares, or the cutting or dividing teeth, and the rubbing or grinding teeth. Such sheep as are full-mouthed have eight of the first sort of teeth in the under jaw; but like other ruminating animals, they are without the upper fore teeth. Two of these teeth drop out, and are replaced at two years old; four of them are renewed at three years old, and the remainder at the age of four: being all replaced, they are even, and tolerably white; but as the animals advance in age, the teeth become loose, blunt, and afterwards black. The incisores are found to wear down in proportion to the action which they have from the kind of food on which the sheep subsist, as long grass does not wear the teeth, whereas a short close turf wears them very fast; but the molares having more strength and a different form, do not suffer so much in this way. It is commonly believed that sheep cast and renew only the six inside ones. Shepherds, however, differ much on this point, some contending that they shed only the six fore teeth; the matter is, therefore, not yet well ascertained. It is remarked, that sheep are very uncertain in casting their teeth, much depending upon their being early or late lambed, well or ill fed, and other similar circumstances. Some sheep are observed to be more backward than others, by several months, in proportion to their strength of constitution, and other circumstances. There are some breeds, however, in England that never change their teeth at all. These the shepherds call leather-mouthed; and as their teeth are sooner worn away, they are generally supposed to grow old a year or two before the rest.

In Romney Marsh the teeth of sheep are found to decay much faster, it is believed, than in any other part of the kingdom. As close feeding wears the teeth exceedingly, of course those who *stock* the hardest commonly decay the soonest. The sheep-graziers in this district are therefore very particular in mouthing their sheep, which are kept or rejected according as their mouths are found to be good or bad; as where the latter is the case they have great difficulty

in maintaining themselves during the winter season. It is noticed, that about the time of renewing their teeth, sheep are very tender in their mouths, and do not thrive so well as they do at other seasons.

The age of the ram, and all horned sheep, may also be known by their horns, which shew themselves in their very first year, and often at the birth, and continue to grow a ring annually to the last period of their lives, which seldom exceeds fifteen or sixteen years.

The different ages and conditions of sheep have different names in different districts. The general name of the male is tup, or ram. From the time he is weaned to the first clipping or shearing, he is called hog-hoggerel, or lamb-hog; after that he is a shearling, shearing, shear-hog, dinmond tup, or ram. Then, according to the year in which he is clipped or shorn, he is called two-shear ram, three-shear-ram, and so on. If the male be emasculated he is called, whilst sucking, a wether lamb, then wether hog, until he is shorn, when he takes the name of shearling, &c. till shorn a second time, when he is a young wether, or two-shear wether, then three or four-shear wether, or more, according to the number of times he has been shorn. The female has the general name of ewe; whilst sucking she is called an ewe-lamb, or gimmer-lamb; but when weaned, ewe-hog, or gimmer-hog, until clipped or shorn for the first time, when she takes the name of gimmer, which continues only for one year, till she looses her fleece a second time, when she obtains the general appellation of ewe. Her age is marked by being called a two-shear, three-shear, or four-shear ewe. What are denominated gimmers in the north, are in many of the midland parts of England called theaves, and when twice shorn, double theaves. In some parts the male lambs are called heeders, and the female sheeders. In others, hogs are called tegs, and two-year-old ewes twinters; and three years old, thrunters.—(Culley's

Observations on Live Stock.) There are several other provincial names.

The criterion of an excellent ram, as given by Culley, combines qualities which ought to be found in every breed of sheep cultivated for the flesh and wool. His head should be fine and small; his nostrils wide and expanded; his eyes prominent, and rather bold and daring; ears thin; his collar full from the breast and shoulders, but tapering gradually all the way to where the neck and head join, which should be very fine and graceful, being perfectly free from any coarse leather hanging down. The shoulders must be broad and full, and should, at the same time, join so easy to the collar forward, and to the chine backward, as to leave not the least hollow in either place. Upon his fore thigh the flesh must come quite to the knee; his legs should be upright, with a clean fine bone, equally clear from superfluous skin and coarse hairy wool, from the knee and hough downwards. The breast ought to be wide, and well forward, which will keep his fore legs at a proper distance; his girth, or chest, full and deep; and instead of a hollow behind the shoulders, that part, by some called the fore flank, should be quite full; the back and loins broad, flat, and straight, from which the ribs must rise with a fine circular arch; his belly straight; the quarters long and full, with mutton quite down to the hough, which should neither stand in nor out. The twist, or junction of the inside of the thighs, ought to be deep, wide, and full, which, with the broad breast, will keep his fore legs open and upright. The whole body should be covered with a thin pelt, and that with fine bright soft wool.

The criteria of a sound healthy sheep are, rather wild or lively briskness; a brilliant clearness in the eye; a florid ruddy colour on the inside of the eye-lids and what are termed the eye-strings, as well as in the gums; a fastness in the teeth; a sweet fragrance in the breath; a dryness of the nose and eyes; breathing easy and regular; a coolness in

the feet; dung properly formed; coat, or fleece, firmly attached to the skin, and unbroken; the skin exhibiting a florid red appearance, especially upon the brisket. Where there are discharges from the nose and eyes, they indicate their having taken cold, and the sheep should be attended to, by putting them in dry, sheltered situations. This is a necessary precaution also in bringing them from one situation to another while on the road.

Sheep are subject to many diseases: some arise from insects which deposit their eggs in different parts of the animal; others are caused by their being kept in wet pastures; for as the sheep requires but little drink, it is naturally fond of a dry soil. The dropsy, rot, vertigo (the pendro of the Welsh), the foot-rot, staggers, and scab, annually make great havoc among our flocks. For the first disease the shepherd finds a remedy by turning the infected animals into fields of broom, a plant which has been also found to be very efficacious in the same disorder among the human species. The rot, which is considered one of the most dangerous disorders, is a decay in the liver, occasioned, as many naturalists have asserted, by a kind of flat worm, in shape not unlike the seeds of a gourd, which the farmers call flukes, or flounders (*fasicola hepatica*). The *tænia cerebralis* that is found in the brain, or in the spinal marrow immediately below the brain, occasions giddiness and staggering, and the disease called dunt, or rickets. The latter kinds, which chiefly attack yearling lambs, are not larger than a grain of sand.

Like the horse, the sheep has its peculiar *œstrus ovis*, or gadfly, which deposits its eggs above the nose, in the frontal sinuses. When those turn into maggots they become excessively painful, and cause those violent agitations in which we so often see the animal. The French shepherds make a common practice of easing the sheep by trepanning, and taking out the maggots; this practice is sometimes used by the English shepherds, but not always with the same success. The sheep is also troubled with a kind of tick and

louse, from which magpies and starlings contribute to ease it, by lighting on its back and picking off the insects.

Besides the fleece, there is scarcely any part of this animal that is not useful to mankind. The flesh is a delicate and wholesome food. The skin, when dressed, forms different parts of our apparel, and is used for covers of books. The entrails, properly prepared and twisted, serve as strings for various musical instruments. The bones, calcined (like other bones in general), form a material for refiners' tests. The milk is thicker than that of cows, and, consequently, yields a greater quantity of butter and cheese: in some places it is so rich that it will not produce the cheese without a mixture of water to make it part from the whey. The dung is a remarkably rich manure, insomuch that the folding of sheep is of great advantage to land; and when it is wished to improve any by this means, the ground must be enclosed, and the flock shut in at night: the dung, urine, and heat of the animals will soon enrich the most exhausted, cold, and infertile grounds. A hundred sheep in one summer will fertilise about eight acres of land; but they are generally of a restless disposition, and have a great propensity to roaming: it therefore becomes requisite for farmers who keep them in enclosures to change their pasturage very frequently; for, notwithstanding their feed may be overabundant, yet they will desert it, after a day or two's restraint, for a place which has no other recommendation than novelty; and it must be a very strong hedge or barrier that can check them in this roaming disposition. There is generally one or more sheep in large flocks which are particularly addicted to this propensity; and it is advantageous for the farmer to get rid of such as early as possible, for by their habits they induce the whole flock to follow them. It is not uncommon to see immense gaps in the hedges which bound the sheep-pastures; for in getting out, the leader will press through, and the others immediately follow like a flood, sweeping down the hedges and banks in their progress to a great

extent. Their adroitness in entering a new place is equally remarkable, as the writer has frequently witnessed them when assembled at a spot where the hedges appeared weak enough to give way to their attacks: if the bank is very high, and inaccessible to an individual sheep, the others will aid him by pressing against him, and thus push him up the bank till he has obtained an entrance to the desired spot. They thus keep on in succession, and the gap becomes wider and wider till the bank is trampled down, and the place made sufficiently large for the hinder part of the flock to enter without the smallest difficulty.

We shall now redeem the pledge we gave in the early part of this account by quoting from the *Shepherd's Calendar*, by the "Ettrick Shepherd," and thereby testify that the sheep is not (as described by Buffon) so destitute of natural affection for its offspring: the former says: —

"The sheep has scarcely any marked character save that of natural affection, of which it possesses a very great share. It is otherwise a stupid, indifferent animal, having few wants, and fewer expedients. The old black-faced, or forest breed, have far more powerful capabilities than any of the finer breeds that have been introduced into Scotland; and therefore the few anecdotes that I have to relate shall be confined to them.

"The most singular one that I know of, to be quite well authenticated, is that of a black ewe that returned with her lamb from the head of Glen-Lyon to the farm of Harehope, in Tweeddale, and accomplished the journey in nine days. She was soon missed by her owner, and a shepherd followed her all the way to Crieff, where he turned and gave her up. He got intelligence of her all the way; and every one told him that she absolutely persisted in travelling on. She would not be turned, regarding neither sheep nor shepherd by the way. Her lamb was often far behind, and she had constantly to urge it on by impatient bleating. She unluckily came to Stirling on the morning of a great annual

fair about the end of May; and judging it imprudent to adventure through the crowd with her lamb, she halted on the north side of the town the whole day, where she was seen by hundreds lying close to the road-side. But next morning, when all grew quiet, a little after the break of day, she was observed stealing quietly through the town, in apparent terror of the dogs that were prowling about the street. The last time she was seen on the road was at a toll-bar near St. Ninian's; the man stopped her, thinking she was a strayed animal, and that some one would claim her. She tried several times to break through per force when he opened the gate, but he always prevented her; and at length she turned patiently again. She had found some means of eluding him, however; for home she came on a Sabbath morning, the 4th of June; and she left the farm of Locks, in Glen-Lyon, either on the Thursday afternoon, or Friday morning, the week previous but one. The farmer of Harehope paid the Highland farmer the price of her; and she lived on her native farm till she died of old age, in her seventeenth year.

"I have heard of sheep returning from Yorkshire to the Highlands; but then I always suspected that they might have been lost by the way. But this is certain, that when once one or a few sheep get away from the rest of their acquaintances, they return homeward with great eagerness and perseverance. I have lived beside a drove-road the better part of my life; and many stragglers have I seen bending their steps northward in the spring of the year. A shepherd rarely sees these journeyers twice; if he sees them, and stops them in the morning, they are gone long before night; and if he sees them at night, they will be gone many miles before morning. This strong attachment to the place of their nativity is much more predominant in our aboriginal breed than in any other kinds with which I am acquainted.

"There is another peculiarity in their nature, of which I

have witnessed innumerable instances. I shall only relate one; for they are all alike, and shew how much the sheep is a creature of habit.

"A shepherd, in Blackhouse, bought a few sheep from another in Crawmel, about ten miles distant. In the spring following, one of the ewes went back to her native place, and yeaned on a wild hill, called Crawmel Craig. On a certain day, about the beginning of July following, the shepherd went and brought home his ewe and lamb,—took the fleece from the ewe, and kept the lamb for one of his stock.

"The lamb lived and throve, became a hog and a gimmer, and never offered to leave home; but when three years of age, and about to have her first lamb, she vanished; and the morning after, the Crawmel shepherd, in going his rounds, found her, with a new-yeaned lamb, on the very gair of the Crawmel Craig where she was lambed herself. She remained there till the first week of July, the time when she was brought a lamb herself, and then she came home with hers of her own accord; and this custom she continued annually, with the greatest punctuality, as long as she lived. At length her lambs, when they came of age, began the same practice; and the shepherd was obliged to dispose of the whole breed.

"But with regard to their natural affection, the instances that might be mentioned are without number, stupid and actionless creatures as they are. When one loses its sight in a flock of short sheep, it is rarely abandoned to itself in that hapless and helpless state. Some one always attaches itself to it, and by bleating calls it back from the precipice, the lake, the pool, and all dangers whatever.

"There is a disease among sheep called by shepherds the breakshugh, a sort of deadly dysentery, which is as infectious as fire in a flock. Whenever a sheep feels itself seized by this, it instantly absents itself from all the rest, shunning their society with the greatest care; it even hides itself, and is often very hard to be found. Though this propensity

can hardly be attributed to natural instinct, it is, at all events, a provision of nature of the greatest kindness and beneficence.

" There is another manifest provision of nature with regard to these animals, which is, that the more inhospitable the land is on which they feed, the greater their kindness and attention to their young. I once herded two years on a wild and bare farm, called Willenslee, on the border of Mid-Lothian ; and of all the sheep I ever saw, these were the kindest and most affectionate to their young.

" I was often deeply affected at scenes which I witnessed there. We had one very hard winter, so that our sheep grew lean in the spring, and the thwarter-ill (a sort of paralytic affection) came among them, and carried off a number. Often have I seen these poor victims, when fallen down to rise no more, even when unable to lift their heads from the ground, holding up the leg to invite the starving lamb to the miserable pittance that the udder still could supply. I had never seen aught more painfully affecting. It is well known, that it is a custom with shepherds when a lamb dies, if the mother have sufficiency of milk, to bring her in and put another lamb to her. I have described the process somewhere else :—it is done by putting the skin of the dead lamb upon the living one ; the ewe immediately acknowledges the relationship ; and after the skin has warmed on it, so as to give it something of the smell of her own progeny, and it has sucked her two or three times, she accepts and nourishes it as her own ever after. Whether it is from joy at this apparent reanimation of her young one, or a little doubt remaining on her mind that she would fain dispel, I cannot decide ; but for a number of days she shews far more fondness, more bleating and caressing over this one than she did formerly over the one that was really her own.

" But this is not what I wanted to explain : it was, that such sheep as thus lose their lambs must be driven to a house with dogs, so that the lamb may be put to them, for

they will only take it in a dark (confined) place. But here, in Willenslee, I never needed to drive home a sheep by force with dogs, or in any other way than the following :—I found every ewe, of course, standing hanging her head over her dead lamb ; and having a piece of twine with me for the purpose, I tied that to the lamb's neck or foot, and trailing it along, the ewe followed me into any house or fold I chose to lead her. Any of them would have followed me in that way for miles, with her nose close to the lamb, which she never quitted for a moment, except to chase the dog, which she would not suffer to walk near me. I often, out of curiosity, led them to the side of the kitchen fire by this means into the midst of servants and dogs; but the more that dangers multiplied around the ewe, she clung the closer to her dead offspring, and thought of nothing but protecting it.

" The same year there was a severe blast of snow came on by night, about the latter end of April, which destroyed several scores of our lambs ; and as we had not enow of twins and odd lambs for the mothers that had lost theirs, of course we selected the best ewes, and put lambs to them. As we were making the distribution, I requested of my master to spare me a lamb for a hawked ewe, which he knew, and which was standing over a dead lamb in the head of the Hope, about four miles from the house. He would not do it, but bid me let her stand over the lamb for a day or two, and perhaps a twin would be forthcoming. I did so, and truly she did stand to her charge ; so truly, that I think the like never was equalled by any of the woolly race. I visited her every morning and evening ; and for the first eight days never catched her above two or three yards from the lamb ; and always, as I went my rounds, she eyed me long ere I came near her, and kept tramping with her foot, to fright away the dog. He got a regular chase twice a day as I passed by ; but however excited and fierce a ewe may be, she never offers any resistance to mankind, being perfectly and meekly passive to them.

"The weather grew fine and warm, and the dead lamb soon decayed, which the body of a dead lamb does particularly soon; but still this affectionate and desolate creature kept hanging over the poor remains with an affection that seemed to be nourished by hopelessness. It often drew the tears from my eyes to see her hanging with such fondness over a few bones, mixed with a small portion of wool. For the first fortnight she never quitted the spot; and for another week she visited it every morning and evening, uttering a few kindly and heart-piercing bleats each time, till at length every remnant of her offspring vanished, mixing with the soil."

We shall add the following anecdote, and then proceed to describe the principal varieties of the domesticated and wild sheep.

A drover being on his way with a flock of sheep for Smithfield market, one of them became so lame and sore-footed that it could travel no farther. The man, wishing to get rid of the impediment, took up the distressed animal, and dropped it over the pales of a paddock belonging to Mr. O'Kelly, where the famous race-horse Duncannon was then grazing, and pursued his journey, intending to call for the sheep on his return to the farmer who had employed him, believing the creature, after a little rest, would quickly recover, which was the case; but such an attachment between the two rangers of the little space presently took place as almost to surpass probability. It is related, on indisputable evidence, that such was the affection of Duncannon for the sheep, that, besides sporting with it in various ways, he would sometimes bite it by the neck, with great tenderness, and lift it into the crib where the groom deposited his fodder; as much as to say, though you are not able to reach it, I will help you to the banquet. Besides this, the horse would on all occasions defend his new friend, and suffered no one to offer him the least molestation. Mr. O'Kelly being made acquainted with these circumstances, bought the sheep

J. L. Le Keux. fc.

NEW LEICESTER SHEEP.

P. Sands. fc.

TEESWATER.

P. Sands. fc.

Landseer

SOUTH DOWN.

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of the farmer, marked the wool with his own initials, D. O'K., and left the two friends in peaceable possession of the paddock and its adjoining shelter.

THE NEW LEICESTER SHEEP.

" This improved breed is readily distinguished from the other long-woolled species. The great advantages of this kind of sheep have been stated to consist in producing a better profit to the store-master, in proportion to the quantity of food consumed, than most other breeds; in being more perfectly formed, and consequently more disposed to fatten quickly; in containing a much larger proportion of meat on an equal weight of bone; in thriving well on such pastures as would not support other sorts of the same size; in being capable of being kept or fattened in larger proportions to the acre than other breeds of the same size of carcass; in the wool being more valuable, though less in quantity; in their being ready for the butcher in the early part of the spring, instead of autumn, by which there is a considerable saving in the summer's grass; and in the mutton, from the closeness of its texture, keeping longer than that of other equal-sized breeds of sheep.

" On the other hand, the disadvantages of this breed are, the fattening too much, and the mutton in consequence becoming less delicate in its flavour than in other breeds that require greater length of time in the process; the deficiency in the quantity of wool; and in their not being calculated for the fold. It has also been suggested, that their peculiar rounded form, from throwing much of the fat on the external parts, prevents their tallowing well internally; and that, from their great propensity to fatten, they are liable to early decay, becoming old sooner than the other breeds. There can, nevertheless, be no doubt but that it is a valuable breed on pastures that are adapted to it, as is

evinced from its rapidly making its way into different districts of the kingdom. The progressive value of new Leicester sheep is stated as very great in the account of the agriculture of Lincolnshire, in which the advantages and disadvantages of the breeds of that county and the former are somewhat examined and considered. And it is necessary to draw a distinction between the rich south-eastern district and inferior soils, as, upon the former, the advantage is strongly, it is said, in favour of the Lincoln sort.

"The proper new Leicester sort of sheep has been found a very advantageous breed on the stone brash lands in Oxfordshire; and, in the opinion of some farmers there, there is no other sort that equals them, all their valuable properties being taken into account.

"The great use and advantage of this breed, besides those already stated, seem to be, the early production of a large quantity of mutton, of the less fine, but fatter kind, and the affording wool of a finer and more fit sort for some purposes, though less in weight. It is necessary, however, to dispose of the wethers of this breed of sheep at the early age of two years, as they then bear the best profit; and when kept longer are liable to become too fat for the better sort of tables. This early maturity may be turned to great advantage in many cases."—(*Oxford Ency. Supplement.*)

LINCOLNSHIRE BREED OF SHEEP.

This variety of breed is chiefly prevalent in the district from which it derives its name, also in some rich grazing ones in the same neighbourhood, and a few other places. They are now in a great measure free from those defects of the old breed which have been so much complained of, namely, a looseness of form, slow feeding, coarse-grained flesh, and too much bone; and this advantage has been effected by crossing them with the new Leicester tups.

This kind of sheep cannot be rendered fat at an early age, except upon the richest land, such as Romney marsh, and the richest marshes of Lincolnshire; but the prodigious weight of wool which they annually produce is an inducement to the occupiers of marsh land to give great prices to the breeders for their yearlings; and though the purchasers must keep them two years before they get them fat for the market, they have three clips of wool in that time, which alone repay them sufficiently well. Hence a good Lincoln has ever been, and still continues, a favourite at Smithfield market. The improved Lincolns are now among the best, if not actually the best long-woolled sheep-stock in the kingdom.

As it is now ascertained in the breeding of sheep, that the double advantage of wool and mutton can be combined, the grand object of breeders should be, the production of improved wool and good mutton, whatever the nature of the breed may be.

THE TEESWATER SHEEP.

The Teeswater sheep differ from the Lincolnshire in their wool not being so long and heavy, in standing upon higher, though finer-boned, legs — in a thicker, firmer, and heavier carcass — much wider upon their backs and sides — and in affording a fatter and finer-grained carcass of mutton; the two-year old wethers weighing from twenty-five to thirty-five pounds per quarter; while some particular ones of four years' old have been fed to fifty-five pounds and upwards. There is little doubt that the Teeswater sheep were originally bred from the same stock as the Lincolnshire; but, by attending to size rather than to wool, and constantly pursuing that object, they have become a different variety from the original breed. The ewes possess one property of great importance, which is, that they are generally very prolific,

bringing forth two, frequently three, and sometimes a greater number, at a birth. Mr. Eddison had a ewe which yeaned sixteen lambs in four years; and of these the first nine within eleven months. In its original state it was doubtless the largest of this race of animals upon the island. The present favourite breed is considerably smaller than the original species, which is nearly extinct, and was most prevalent on the rich, fine, fertile, enclosed lands on the banks of the river Tees, in Yorkshire.

SOUTH-DOWN SHEEP.

This breed prevails on the dry chalk downs of Sussex, as well as on the hills of Surrey and Kent, and has lately been much improved both in carcass and wool, being much enlarged forward, carrying a good fore-flank; and for the less fertile hilly pastures it is an excellent sort, since it feeds close. These sheep are hardy, and disposed to fatten quickly; and where the ewes are full kept, they frequently produce twin lambs, nearly in the proportion of one-third of the whole, which are, when dropped, well woolled. The wethers are capable of being disposed of at an early age, being seldom kept longer than two years' old, and often fed at eighteen months. The excellent properties of this breed have been brought fully under the notice of the flock farmer by the great patrons of improvement in Bedfordshire and Norfolk; and its superior merits on trial have been such as to induce the sheep farmers in various districts to introduce them in preference to the other breeds. They consume less food in proportion to their weight than the Norfolks, yet keep themselves in better order. Young sheep produce the best lambs: the crosses are of course sold at four or five years' old; and if they were sold earlier, it would probably be more profitable to the store-master. It is supposed that all that the South Downs want is the noble covering of

F. Sands fc.

HEATH SHEEP.

J. LeKeux. fc.

CHEVIOT.

F. Sands fc.

MERINO.

a Spanish fleece; and how little their carcass would suffer by the cross, has, it is said, been demonstrated by Lord Somerville in the exhibition of a very fine ewe, large enough for any purpose, half Spanish and half South Down.

At from one and a half to two years' old, the weight per quarter in wethers of the improved sort is from 18 lbs. to 35 lbs. and more.
Weight per quarter in ewes, from 16 lbs. to 18 lbs. and 20 lbs.
Weight per quarter in the Cannock-heath sort crossed, from 18 lbs. to 25 lbs.
Mutton in perfection at a year and a half old.
Mutton, quality of, very good.
Mutton, time of using, from Christmas to the Spring.

(*Oxford Ency. Supplement.*)

The Wiltshire Downs and Salisbury Plain are now nearly covered with them, to the almost entire exclusion of the great Wiltshire sheep.

THE HEATH SHEEP.

These have large spiral horns, black faces and legs, and an unusually fierce and wild-looking eye. Their wool is long, open, coarse, and shagged; the carcass short and firm, and weighs on an average from twelve to sixteen pounds per quarter.

The range of country on which the Heath sheep are chiefly found is the mountainous tract adjoining upon the Irish sea, from the county of Lancaster to Fort William in Scotland. They are a wild, active, and hardy race, run with amazing agility, and are exceedingly well adapted to heathy and mountainous districts. They are not often fed till they are from three to five years' old; at this age they feed well, and their mutton is accounted particularly excellent.

Considerable improvements have been made of late years in this breed of sheep, but there is yet much to be done with regard to the quality of the wool; for, by judicious crossings with the best of the fine-woolled breeds, the Heath sheep may

ultimately become a highly valuable kind. The three principal fairs for these sheep are, Brough, in Westmoreland; Stagshaw-bank, in Northumberland; and Linton, in Scotland: great numbers are annually sold at these places.

THE CHEVIOT SHEEP

Are without horns; the head clean and bare; face and legs white; the body is long, but the fore quarters generally want depth in the breast, and breadth on the chine, though great improvements in these respects have been made of late. It is a highly excellent mountain breed; the wool is of a valuable texture, and the mutton is greatly esteemed on account of its flavour. These animals thrive on the most sterile heaths, and are capable of supporting all the severities of winter, with no other food than the produce of the heaths, except during the deep snows, when they are occasionally supplied with hay.

The country in which the Cheviot sheep are principally found, is a hilly district of the north-west part of Cumberland; and they do not extend much farther south than Reedwater. They are bred on all the hills around Cheviot, from which they take their name; yet on that barren mountain itself there are no sheep whatever.

It has been an old and general, but to the animals certainly an injurious, practice, to milk the ewes of this breed for eight or ten weeks after the lambs are weaned. From this milk great quantities of cheese are made, which is sold at a low price. This, when three or four years old, becomes exceedingly pungent; and on that account it is by many persons much esteemed.

DORSETSHIRE SHEEP

Are mostly white-faced, and their legs are long and small: they have rather an uncouth appearance, from the bellies of most of them being destitute of wool. From the fleece, which is small in quantity, but the quality good, our fine Wiltshire cloths are made. The true kind of this breed is only to be found in Dorsetshire and Wiltshire; but varieties of it are spread through most of the southern counties. The ewes of the Dorsetshire breed are remarkably prolific, and are capable of bringing forth twice a-year; and from these the tables of the nobility and gentry are furnished with the early, or house lamb, at Christmas, or earlier if required. Numbers of these premature victims to luxury are annually sent to the London markets, where they are sold at the enormous price of 10*s*. 6*d*. or 15*s*. per quarter. The manner of rearing the lambs is singular: they are confined in little dark cabins; in a field contiguous to which the ewes are fed with oil-cake, turnips, corn, hay, cabbages, or any other food which the season of the year may afford, and at suitable intervals the dams are brought in to give suck to their young ones, during which time it is the business of the attendant to make their lodging perfectly clean, and litter them with fresh straw. This is done with great regularity and attention, as the success of rearing lambs thus artificially greatly depends upon warmth and cleanliness.

SHETLAND SHEEP.

This breed was formerly a native of the higher parts of Aberdeenshire, and the districts to the northward of it; but it has been since much crossed, and is now mostly confined

to the Orkney and Shetland Islands, the purest breed being found in the latter. The number of sheep in these isles amounted, some years since, to 90,000, and five or six of them are said to require no more than is necessary for one English sheep. It is stated that in the West Riding of Yorkshire, Mr. Beaumont made a trial of these sheep, the result of which was, that they did not fatten, but grow, which shews that their size would improve with that of the soil; their wool also improved in length. The original native breed of the Highlands are said to partake of the deer or goat, their coat consisting of a sort of fur or down, covered by long, straight, rigid hairs, like those of the beaver, rather than wool. The tail is short, slender, tapering, not larger than that of the deer or goat, and thinly covered with strong, silvery hairs; the face covered with sleek hairs, like the face of the deer, of which animal this breed possess the prominent eyes. They are tame, delicate of frame, and require to be housed in winter; and their flesh is of high venison flavour.

The breed is found in its original purity in the central Highlands, on the southern banks of Strath Tay, and between those and Strath Brand; and on the banks of Loch Ness, in the southern Highlands, as well as in the Shetland Islands. This is a breed of sheep which may be divided into two sorts, which somewhat differ as to the nature of the coat, but in hardiness are much the same, having that quality in a very high degree. They are, however, much in want of improvement in disposition, their present wildness and restlessness detracting considerably from their utility and profitableness.—(*Oxford Cyclopædia, Supplement.*)

It is very singular, that in the holms round Kirkwall, in the island of Mamland, one of the Orkneys, if a person about the lambing time enters with a dog, the ewes suddenly take fright; and, through the influence of fear, as it is imagined, instantly drop down dead, as if their brain had been pierced with a musket-ball.

WELSH BREED OF SHEEP.

The general breed of this hilly country are small in size, horned, and all over of a white colour; there is likewise a polled, short-woolled kind of sheep in those parts of the country, which are preferred by some graziers. The genuine Welsh mutton is highly esteemed, from its smallness and its delicate flavour, and is usually sold at a high price; but so much ill-fed and half-starved meat from various districts is sold under the denomination of Welsh mutton, that many are disgusted at the name of it. Some persons are of opinion, that the Welsh sheep are the original of all the breeds in this island.

IRISH BREED.

These sheep have long, ugly heads, without horns, but with large flagging ears, grey faces, and sunk eyes, long necks, set on below the shoulders, high narrow backs, narrow and short breasts: they are hollow before and behind the shoulders, flat-sided, have their hind quarters drooping, the tail set low, and the whole carcass supported by long, thick, crooked, grey legs; in short, they are considered as in every way contrary to what a well-formed sheep should be; but it must be admitted, that of late many important improvements and alterations have been made in these sheep by judicious selection and crossing; nor can there be any doubt, as the spirit of improvement has extended itself to Ireland, that the Irish sheep will soon be as highly esteemed as those of England, since the mutton is excellent; and by some, is said to be preferable even to the Welsh.

THE MERINO SHEEP.

In this breed of sheep the males have horns, but the females are without. Their shape by no means possesses that symmetry of form which an English grazier considers as the criterion of excellence. The legs are rather long, the neck curved, and from the throat there hangs a pendulous skin or dewlap, which is very offensive to those accustomed to view the improved breeds of English sheep; yet this appendage is valued in Spain as indicating a tendency to produce wool. The colour of the skin beneath the wool, on the back and sides, is of a rose-red colour, which is also considered by the Spaniards as a sign of a robust constitution and an abundant fleece. The only English sheep which have the same coloured skin, with the pendulous dewlap, are the Ryeland, which produce also the finest English wool. These circumstances, with the ancient practice of housing the sheep, still continued in Hertfordshire, where it is called *cotting*, confirms the opinion, that the Ryeland sheep were descended from the Tarentine race, introduced by the Romans into this country.

The excessive care bestowed on these flocks by the ancients shews in what estimation their fleeces were held; and though such attention is remote from modern practice, we are fully convinced that, by selecting the very finest and softest Merino flocks, by frequently anointing and washing the wool, we should give to the pile that degree of softness which is so much wanted in the manufacture of shawls, and other costly articles of luxury. From the Merino flocks of Spain nearly all the manufactories of fine cloth in Europe are at present supplied with wool.

Merino sheep were introduced into Sweden in 1723, and their wool equals that produced from Spain at the present day;—into Saxony in 1765;—into France in 1776;—and into

R. Sands fc

TARTARIAN SHEEP.

J. le Keux fc

ICELAND.

R. Sands fc

WALLACHIAN.

London, Published [illegible] by [illegible] Strand, [illegible] Simpkin & Marshall S.

Great Britain in 1787. In 1792, his late Majesty George III. obtained from the Marquess of Campo five rams and thirty-five ewes of the Negrette race; and at present this breed is perfectly naturalised here. The horns of the true Merino rams are now of a middle size; the faces and legs darkish-white, and the latter inclined to be too long. The wool is uncommonly fine, and weighs about $3\frac{1}{2}$ lbs. to the fleece; nor does it deteriorate in this climate. The fleeces have a dark-brown tinge on the surfaces, approaching almost to a black, formed by dust sticking on the greasy, yolky property of its pile; the contrast between which, and the rich, white-coloured wethers, and the rosy hue of the skin, is very striking on the first view.

The interest which the introduction of the Merinos had excited was greatly increased by the sales from his late Majesty's flock, which began in 1804. The desirable object of spreading widely over the country, and subjecting them to the experiments of the most eminent professional breeders, has been greatly promoted by the institution of the Merino Society in 1811, which now comprehends some of the greatest landholders and the most eminent breeders in the kingdom: but for some years past this breed has been on the decline.

TARTARIAN, OR AFRICAN SHEEP.

Ovis Guineensis. LINN.

Some naturalists have considered this as the Cape sheep, from which it differs very considerably, as will be seen on comparison with our description of that animal. Buffon erroneously supposes it of Indian origin. It is mostly found in Guinea. It is distinguished from all the other species of the sheep genus by its remarkably squalid and meagre appearance, the length of its neck and limbs, its arched or curved visage, and pendent ears. It also is covered with hair instead of wool, and beneath the chin is a kind of dewlap. The

horns are very small. Altogether, this creature is the most wretched-looking of the whole family. Of all the domestic kinds, these seem to approach the nearest to a state of nature. They are larger, stronger, and swifter, than the common race, and, consequently, better fitted for a precarious forest life. They seem, however, to rely, like the rest, on man for support, being entirely of a domestic nature, and subsisting only in the warmer climates.

THE ICELANDIC SHEEP.

Ovis Polycerata. LINN. *Many-horned Sheep.* PENN.

This species is found in the most northern parts of Europe, more so than in other regions, but is most common to Iceland. They differ from ours in many particulars: their ears are straight and upright; their tail small; and they have occasionally four or five horns, sometimes even as many as eight, growing from different parts of the forehead. In a few instances these animals are kept in stables during the winter; but the greatest portion are left to seek their own provender in the open plains. They hide themselves in caves in stormy weather from the fury of the elements; but when they are unable to find these retreats, they collect into a mass during the heavy snow showers, placing their heads together, with their muzzles downwards towards the ground. This not only preserves them from being buried under the snow, as they would otherwise be, but, in many instances, enables their owner to discover them. Sometimes they remain in this situation for several days; and in cases of severe hunger, they have actually eaten each other's wool. After the storm has ceased, they are sought for and disengaged.

A good Icelandic sheep will yield from two to six quarts of milk a-day; and from this the inhabitants make butter and cheese. But their principal profit is derived from the wool, which is not shorn, but disengages itself, like a skin,

Pl.17.

J. Le Keux sc.

WALLACHIAN.

R. Sands sc.

ARGALI or MOUFFLON.

R. Sands sc.

BARBARY.

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and is stripped off at once; this takes place about the end of May. The whole body is by this time covered again with fine new wool, which is short, but extremely fine. It continues to grow during the summer, and towards the autumn it becomes of a coarser texture; it is very shaggy, and somewhat resembles camel's hair. This covering enables the sheep to support the rigours of winter; but if, after they have lost their fleece, the weather should prove wet, the inhabitants sew a piece of coarse cloth around the stomachs of the weakest, to guard them against any ill effects.

THE WALLACHIAN, OR CRETAN SHEEP.

Ovis Strepsiceros. LINN. *La Chèvre de Crète.* BUFF.

These curious and singular varieties, of which we have given two representations, are principally found in the island of Crete and in Wallachia. A great difference exists in the configuration of the horns in the sexes of this species; those of the male being upright and nearly perpendicular, whereas those of the female diverge almost at right angles to the head. The horns of this animal are very beautiful when compared with the other species of the sheep tribe, as they are convoluted much in the manner of a screw. Although these sheep are indigenous in the countries already mentioned, yet they are often bred in other parts of Europe for their interesting and singular appearance. Their fleece is long and shaggy, not dissimilar to those of England. This creature is supposed by Linnæus to be the *ovis strepsiceros* of the ancients.

BROAD-TAILED, OR BARBARY SHEEP.

Ovis Laticaudata. LINN. *Mouton de Barbarie, Mouton d'Arabie.* BUFF.

In their general appearance, with the exception of the tail, these animals differ but little from the European sheep. The tail, however, is so large as sometimes to weigh nearly

one-third of the whole carcass, and, if reports are to be credited, from fifteen to fifty pounds. It appears to be entirely composed of a substance between marrow and fat, which answers, in culinary purposes, instead of butter; and, being cut into small pieces, it forms an ingredient in various dishes. When the animal is very young, it is little inferior to the best marrow. This curious and extraordinary variety is found in Syria, Barbary, Ethiopia, Tartary, and Thibet. The sheep of Thibet are remarkable for the exquisite delicacy and fineness of their wool, which is manufactured into shawls, and thus forms a considerable source of wealth to the inhabitants.

These sheep are usually kept in yards, so as to be in little danger of injuring their tails when they walk about; but when they run in the fields, the shepherds, in several parts of Syria, affix a thin piece of board on the under part, and to this board are sometimes added small wheels; so that, with a little exaggeration, we have the story of the oriental sheep having carts to carry their tails. Mr. Pennant observes, that the broad and the long-tailed varieties of this kind of sheep were known to the ancients, being mentioned by Aristotle and Pliny, the former noticing the first, and the latter the second sort, and observing that the one was a cubit long, the other a cubit broad.

There are numerous intermediate races of these sheep; and some have tails terminating in a point, others rather square, or rounded.

THE ARGALI, OR MOUFLON.

Capra Ammon. LINN. *Le Mouflon.* BUFF.

The argali, or wild sheep, is an inhabitant of rocky and mountainous regions, and is principally found in the alpine parts of Asia. Dr. Pallas observed this species existing throughout the vast chain of mountains extending through the middle of that continent to the Eastern Sea.

The argalis are very plentiful in Kamtschatka and Barbary, as well as in the mountains of Greece and in the Corsican and Sardinian islands, merely differing in a few slight particulars of size and colour, according to the climate.

These animals have large horns, arched semicircularly backward, and divergent at their tips, wrinkled on their upper surface, and flattened beneath: on the neck are two pendent hairy dewlaps. This creature is about the size of the fallow deer. It is of a gray ferruginous brown colour above, and whitish beneath: the face is also of a whitish hue; and behind each of the shoulders a dusky patch or spot is often discovered. In the European variety the legs are generally white: the head exhibits much resemblance to the ram; but the ears are considerably smaller in proportion to its size. The body is large; but the neck and legs are slender, and the latter are very strong. The tail is very short, being seldom more than three inches in length. The horns, in the adult or full-grown animal, have much the appearance of those of the common ram. This animal has hair instead of wool, thus greatly differing from the general aspect of the sheep; but the face, in winter, and especially that part about the tip of the nose, becomes whiter; the back is of a more ferruginous cast; and the hair, which is close in summer, like the deer, becomes somewhat wavy, a little curled, and rough, consisting of a kind of wool intermixed with hair, and its roots concealed by a fine woolly down. About the neck and shoulders, as well as under the throat, the hair is considerably longer than elsewhere. The female is much less than the male, and her horns neither so much curved nor so large as those of the ram.

From spring to autumn the argalis feed in the little valleys among the upper regions of the mountains, on the young shoots of the alpine plants, and are said to grow very fat. As winter approaches, they descend lower, and eat grass and other vegetables. They are fond of frequenting spots of

a saline nature, and will excavate the ground in such places in order to get at the salt.

In Siberia the argali is chiefly found on the summits of the highest mountains, exposed to the sun, and free from woods. They generally travel in small flocks; and seldom produce more than one, or sometimes two, at a birth. The young lamb, when first born, is covered with a soft, gray, curling fleece, which gradually changes into hair towards the end of summer.

These animals are very timid; and when closely pursued, they turn and double like a hare, and do not run in a progressive course. They ascend rocky mountains with great agility, passing over the narrowest and most dangerous places with perfect safety, like the wild goat.

The males are said to fight frequently, and often precipitate each other down the rocks in their contests. The chase of these creatures is extremely dangerous and difficult, but is a most important object with some of the Asiatics, as this sheep supplies them with a great number of valuable and necessary articles—the skin being used for clothing, and the flesh as food. Pallas informs us, that "the flesh of the lamb is excellent: that of the old animals is good; but more particularly when roasted."

The horns of the argali grow to a vast size, and some have been found to measure in their convolutions above two ells in length, and to weigh fifteen pounds each. Sometimes they are found broken off in such a manner that the small animals of the forest creep into the cavity for shelter.

The argali is known in Corsica by the name of *mufro;* but it is so extremely wild as to be seldom taken alive: however, it is shot by the hunters, who lie in ambush for it among the recesses in the mountains. Like many other animals, the young ones, which are often taken when the parent has been destroyed, are very easily tamed. The Corsican argali, or *mouflon* of Buffon, is of a much darker colour than the Asiatic variety.

CAPE SHEEP.

Ovis Steatopyga. Linn.

This species has somewhat longish legs and an arched visage; and the male has horns like those of the common sheep, with large pendent ears. They are furnished with a long, coarse, hairy wool. The tail is so much enveloped in fat as to be scarcely visible, the parts on each side swelling out into a pair of naked hemispheres, of such a size as sometimes to weigh nearly forty pounds: their substance is said to resemble suet.

These sheep are found in many of the Tartarian deserts from the Volga to the Irtish, and the Altaic chain of mountains. They exhibit more or less of the appearance just described, according to the nature of their pasture; but are observed to flourish most in those which are of a saline nature.

THE BEARDED SHEEP.

Genus Capra. Pennant. *Tragelaphus.* Caius.

This animal seems rather a variety of the argali than a truly distinct species. Mr. Pennant thus describes its characters:—"Sheep with the hair on the inferior part of the cheeks and upper jaws extremely long, forming a divided or double beard, with hair on the sides, and the body short; on the top of the neck it is much longer and somewhat erect. The whole of the inferior parts of the neck and shoulders are covered with coarse hair, not less than fourteen inches long. Beneath the hairs, on every part, was a short genuine wool, the rudiments of a fleecy clothing: the colour of the breast, neck, back, and sides, a pale ferruginous. Tail very short. Horns close at their base, recurvated, twenty-five inches long, eleven in circumference in the thickest place, diverging,

and bending outwards, their points being nineteen inches distant from each other."

Dr. Caius gave a good description of this animal, from a specimen brought into England from Barbary in the year 1561, and he named it *tragelaphus*, on a supposition that it was the *tragelaphus* of Pliny.

THE PUDU.

Ovis Pudu. Linn. *Capra Pudu.* Molina.

This is a newly discovered species, and we are indebted to Molina for the first description of this animal in his Natural History of Chili. He informs us that it is a native of the Andes, is of a fine brown colour, and in size about the same as a kid a year and a half old. It has much the appearance of a goat; but with smooth small horns, bending outwards, and without a beard. They are of a gregarious nature; and when the snow falls on the superior parts of the mountains, they descend into the valleys below in large herds, to feed in the plains, when they are easily taken and readily tamed. The female is without horns.

Numerous other varieties of sheep might be mentioned; but it would be tedious and useless were we to particularise the minuter variations which occasionally take place in an animal so much affected by climate, pasture, and habits of life.

THE GOAT.

Capra Hircus. Linn. *Le Bouc, la Chèvre.* Buff.

There are some domestic animals that seem merely as auxiliaries to the more useful sorts, and which are therefore greatly undervalued. We have seen the services of the ass slighted, because inferior to those of the horse; and in the same manner those of the goat are neglected, because this creature is excelled by the sheep. Were the horse or sheep

J. Le Keux sc.

GOAT.

R. Sands sc.

ANGORA.

R. Sands sc.

ASSYRIAN.

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to become extinct, both the ass and the goat would then be invaluable; and the same arts would probably be bestowed in perfecting the latter, as have now been employed in improving the former races. But in their present neglected state, they vary but little from the wild animals of the same kind. Man has left them their primitive habits and forms; and the less they owe to his assiduity, the more they receive from nature.

Although the goat is a distinct species, and possibly farther removed from the sheep than the horse is from the ass, yet the buck will readily propagate with the ewe. But though these intercourses happen very frequently, and are sometimes prolific, yet no intermediate species has been formed between the goat and the sheep. The two species are distinct, and remain at the same distance from each other: no change has been effected by the intermixture, no new or middle race has arisen therefrom; at most they have only produced individual differences, which have no influence on the unity of each primitive species, but, on the contrary, confirm the reality of their different characteristics.

There are, however, many cases in which we cannot distinguish these characters, nor pronounce on their differences with certainty. In some we are obliged to suspend our opinions, and in a great number of others we have not the smallest ray of light for our guide, since, independently of the uncertainty arising from the contrariety of assertions respecting recorded facts, independently of the doubts resulting from the inaccuracy of those who have endeavoured to observe nature, the greatest obstacle to the advancement of knowledge is our ignorance of a great number of effects which time has not disclosed to us, and which can be revealed to posterity only by experience and the most accurate observations; in the mean time we stray in darkness, perplexed between prejudices and probabilities,—ignorant even of possibilities, and every moment confounding the opinions of men with the acts of nature. But to our yet

infant Zoological Society we may hereafter be indebted for important information in elucidation of many of those facts which are at present closely veiled in mysterious obscurity. We only know that the goat and the sheep couple together, though we have still to learn whether the mule, from this commixture, is sterile or fruitful.

The goat seems, in every respect, more fitted for a life of savage liberty than the sheep, from which it differs not only in the erect position of its horns, but also in rising on its hind legs when it fights, and turning its head on one side to strike, for rams run full tilt at each other with their heads down: it is besides naturally more lively, and endued with a greater proportion of animal instinct. It easily attaches itself to man, and seems sensible of his caresses. It is also stronger and swifter, more courageous, and more playful, capricious, and vagrant: it is not easily confined to its flock, but chooses its own pastures, and loves to stray remote from the rest. It chiefly delights in climbing precipices, in going to the very edge of danger: it is often suspended upon an eminence hanging over the sea, upon a very little base, and even sleeps there in security. Nature has in some measure fitted it for traversing these declivities with ease, its hoof being hollow underneath, with sharp edges. The goat walks as securely on the ridge of a house as on level ground. Indeed, they have been taught to stand upon a stick placed vertically, the size of which was only just large enough to receive their four feet when gathered together. It is a custom in some places to yoke them together two and two; when thus coupled, they will, as if by consent, take large and hazardous leaps, yet so time their mutual efforts as rarely to miscarry in the attempt. The goat is a hardy animal, and very easily sustained, for which reason it is chiefly the property of the poor, who have no pastures wherewith to supply it. Happily, however, it seems better pleased with the neglected wild than the cultivated fields of art. It inhabits most parts of the world, either native or naturalised. It chooses the

heathy mountain or shrubby rock; its favourite food is the tops of the boughs or the tender bark of young trees. In Norway, during the winter, it feeds on moss and the bark of fir-trees, and even on the logs cut for fuel. It seems less afraid of immoderate heat, and bears the warm climates better, than the sheep. It sleeps exposed to the sun; and seems to enjoy its warmest fervours. Both young and old are affected by the weather; a rainy season makes them thin, a dry sunny one makes them fat and blithe. The goat is not terrified at the storm; excessive cold alone seems to affect it, and is said to produce vertigo, to which disease these animals are liable, and which is also common to the wild chamois. Both species exhibit a similar inclination to climb up rocks, and the custom of continually licking stones, especially those impregnated with nitre or salt: in the Alps are rocks which have been hollowed by the tongues of the chamois. These are commonly composed of soft and calcinable stones, in which there is always a certain quantity of nitre. The inconstancy of the goat's disposition is perceivable in the irregularity of his gait; it goes forward, stops, runs, approaches, flies, from mere caprice, and with no other seeming reason than the extreme vivacity of its temper.

There are proofs of this animal's being naturally the friend of man, and that it seldom resumes its primeval wildness when once reduced to a state of servitude. In the year 1698 an English vessel happened to touch at the island of Bonavista; two negroes came, and offered the sailors as many goats as they chose to take away. Upon the captain's expressing his astonishment at this offer, the negroes assured him that there were but twelve persons in the island, and that the goats had multiplied in such a manner as even to become a nuisance: they added, that instead of giving any trouble to catch them, they followed the few inhabitants that were left with a sort of obstinacy, and became importunate by their excessive tameness. In temperate climates the goat pro-

duces but one kid at a time, though sometimes two, or three at the most; but in the warmer ones, although the animal degenerates and grows less, it becomes more prolific, being generally found to bring forth three, four, and five at a birth. Their period of gestation is about nineteen weeks, and their time of breeding is generally from the end of February to the beginning of May. The female continues to breed from one year, or eighteen months, until she is seven years of age.

The rutting season of these animals is from the beginning of September to November; at that time the males drive whole flocks of the females continually from place to place, and fill the atmosphere around them with their strong and ungrateful odour, which, though as disagreeable as assa-fœtida itself, may conduce to prevent many distempers, and to cure nervous and hysterical ones. Horses are considered to be much refreshed by it, on which account many persons keep a he-goat in their studs or stables. This strong smell does not proceed from their flesh, but from their skin.

Goats have no incisive teeth in the upper jaw; they have eight in the under jaw, which fall out, and are replaced in the same manner as those of the sheep. Their age may be ascertained by the knobs on their horns, and by their teeth. The number in the female goat is not always the same; but they usually have fewer than the male, whose hair is also rougher, and who has both beard and horns longer. These animals, like the ox and sheep, have four stomachs, and chew the cud. Their species is more generally diffused than that of sheep; and goats, similar to ours, are found in many parts of the world; only in Guinea, and other warm climates, as before observed, they are smaller; and in Muscovy, and the more northern regions, they are larger.

Pontoppidan says that goats abound in Norway, and that more than 80,000 raw hides were annually exported from Bergen alone, besides those which were dressed. But goats seem peculiarly calculated for this country, as they search for their food upon high and rugged mountains, are very

courageous, and so far from fearing the wolf, will even assist the dogs in repelling their attacks upon the flock. Between the tropics the mutton becomes flabby and lean, while the flesh of the goat rather seems to improve; and in some places the latter is cultivated in preference to the former. We therefore find this animal in almost every part of the world, as it seems adapted to the necessities of man in both extremes. Towards the north, where the pasture is coarse and barren, the goat is fitted to find a scanty subsistence; while between the tropics, where the heat is excessive, it can bear the climate, and its flesh is found to improve.

One of the most remarkable varieties we find is that of Angora or Natolia.

A second variety is the Assyrian goat of Gesner.

In the third variety may be reckoned the little goat of Africa. The Juda goat resembles ours in most parts, excepting in size, it being much smaller.

These animals seem all of one kind, having very trifling distinctions. It is true that they differ in some respects, such as having neither the same colour, hair, ears, nor horns; but it ought to be remembered in natural history, that neither the horns, the colour, the fineness, or the length of the hair, or the position of the ears, are to be considered as always making an actual distinction. These are often accidental varieties, produced by climate and food, which are known to change even in the same animal, and give it a seeming difference of form. When we see the shapes, the inclinations, and the internal conformations of seemingly different creatures, nearly the same; and, above all, when we see them producing among each other, we can have no hesitation in pronouncing the species, and asserting that these are of the goat kind, with which they are so materially connected.

But although these are evidently known to belong to the goat species, there are others nearly resembling the goat, of whose kindred we cannot be equally certain. These are such

as, being found in a state of nature, have not as yet been sufficiently subjected to human observation. Hence it is impossible to determine with precision whether they belong to a particular kind, or are merely the goat in a state of savage freedom. Were there but one of these wild animals, the inquiry would soon be ended, and we might readily allow it to be the parent stock; but in the present case many naturalists have described two kinds that they consider have almost equal pretensions, and to determine the claims of which has given rise to much discussion. The animals in question are the *chamois* and the *ibex*. Both these approach closely to the goat in figure, have horns that never shed, and at the same time differ more from each other than from the animal in question. From which of these two stocks our domestic goat is derived it is not easy to determine; but we are decidedly of opinion that it is the immediate descendant of the ibex, and that the chamois is but a variety of that stock, or the antelope; and our opinion is founded upon the fact of the superior masculine figure of the ibex,—his large horns and long beard, which characters are so strongly marked upon our domestic goat, and which marks of affinity and primitive strength the chamois is destitute of. However this may be, the two animals in question seem both well fitted for their precarious life, being extremely swift, and capable of running with ease along the ledges of precipices where even the wolf or the fox, though instigated by hunger, dares not pursue them. They are both natives of the Alps, the Pyrenees, and the mountains of Greece, where they propagate in vast numbers, and continue to exist in spite of the hunter, and of every beast of prey that is found incessantly to pursue them.

Such are the quadrupeds that belong to the goat kind. Each of these, in all probability, can engender and breed with the other; and were the whole race extinguished excepting two, these would be sufficient to replenish the world and continue the kind. Nature, however, proceeds in her

variations by slow and insensible degrees, scarcely drawing a firm, distinguishable line between any two neighbouring races of animals whatsoever. Thus it is difficult to discover where the sheep ends and the goat begins; and we shall find it still more difficult to fix, with any precision, the boundaries between the goats and the gazelles, or antelopes.

In all transitions from one kind to the other, there are to be found a middle race of animals, that seem to partake of the nature of both, and that can precisely be referred to neither; such are the saiga, the wood-antelope or goat, and the blue antelope: they form the shade between the goat and the gazelle, and the latter more strongly marks the shade between the goat and the deer, as they have many of the properties of both, and thus fill up the chain in nature.

In several parts of Ireland and the Highlands of Scotland, the goat constitutes the chief possession of the inhabitants. On those mountains where no other useful animal could find subsistence, the goat continues to glean a sufficient living, and supplies the hardy natives with what they consider as luxuries. They lie upon beds made of their skins, which are soft, clean, and wholesome; they live upon their milk, with oat bread; and they convert a part of it into butter, and some into cheese. In this manner, even in the wildest solitudes, the poor find comforts which the rich do not think worthy of their notice. In these mountainous retreats, where the landscape presents only a scene of rocks, heaths, and shrubs, that speak the wretchedness of the soil, these simple people have their feasts and their pleasures; their faithful flock of goats attend them, and furnish them with all the necessaries of life; while their remote situation happily keeps them ignorant of greater luxury.

As these animals are apt to stray from the flock, it is not an easy task for one person to attend above fifty of them at a time. They are fattened in the same manner as sheep; but

their flesh is by no means held in such estimation in our climate as that of the sheep,—since, to persons unaccustomed to eat it, neither the smell nor the taste is agreeable. In several parts of Wales, however, the haunches are occasionally salted and dried, and in this state they supply the place of bacon; being called by the natives of Wales *coch yr wden*, or hung venison. The flesh of the kid is far superior; it is exceedingly rich, and is usually considered more excellent even than lamb. When domesticated, these animals are not often permitted to grow old; it is usual to kill them as soon as they cease to multiply, because their flesh declines in quality as they advance in age. In our climate they are seldom known to live above eleven or twelve years.

When kept among sheep they do not mix with them, but always precede the flock. Great attention is necessary to keep them from corn, vines, and young plantations, as they are great destroyers, and devour with avidity the tender bark and the young shoots of trees, which proves fatal to the growth of such plants. Goats avoid humid and marshy fields, or rich pastures; nor are they often kept on flat lands, because it does not agree with them, and also makes their flesh ill-tasted. In most warm climates goats are bred in great numbers, and never put into the stables; but in France and Switzerland,* where they are kept in flocks, they would perish

* Latrobe, in his recent publication of the "Alpenstock, or Sketches of Swiss Scenery and Manners," says, "I had hardly set my foot upon the lower bridge over the Aar, before I heard the tinkling of goat-bells behind me; and wishing to see this animal under the multitude of varieties which a large herd presents, I stopped short till they should overtake me. They soon appeared in sight, having left their mountain pasture at sunset to return to be milked in the village, where they always pass the night. Most of the larger Swiss villages have an individual, employed by the inhabitants conjointly, to take care of their goats during the day. This goatherd, who is often an idiot, makes his appearance in the main street at daybreak; he sounds his horn, and each peasant turns his goat or goats out of the stall. The animals then herd instinctively together, and are led on to the mountains, where they feed during the day, and are brought back, as just mentioned, at

if not preserved from the inclemency of the winter; and as moisture is hurtful to them when housed, they should never be suffered to lie down upon their own dung; but should have a little clean litter in winter, or only a paved floor kept clean. They should be taken out into the fields very early in the morning, whilst the dew is on the grass, which, though hurtful to sheep, is very salutary to goats. They should not be suffered to go out during snow or hoar frost; but be kept in the stable, and fed with herbage, small branches of trees gathered in autumn, or on cabbages, turnips, and other roots. The more they eat, the greater will be the quantity of milk; and to increase the latter still more, they should be enticed to

nightfall. They came forward, trotting across the bridge over the Aar, pushing and skirmishing with one another with every sign of saucy impatience. The goatherd, who walked after them, with his coat hanging over a stick upon his shoulder, and a great pair of dun heels peeping out of his clogs at every step he took in the mire, was a true modern specimen of this class; perfectly unpoetical and unphilosophical in appearance, in spite of the poetry of his profession. Instead of 'tuneful quill,' his lips were busy with a short black tobacco pipe. In a herd of above one hundred goats, which seemed to be conducting him to his home, there was a great variety of colour, from milk-white, through all the shades of yellow and brown, to black. There was equal difference in the quantity and quality of their coats, some being covered with a long and shaggy hair, and others with a short and smooth fur. Most of them had beards, though all female; and some of them, in addition, two little tufts at each side of the throat, which looked for all the world like a cap or bonnet-strings. When we approached the village, they became much more clamorous and quarrelsome, and I could see and hear that there was strong skirmishing in the van. Immediately on entering it we were met by a crowd of children, many not above three or four years old. They came forward to meet us, and, mingling with the herd, began to seek and pick out their several pets. When found, they grasped their horns, or put their little arms round their necks, and directed them home. Many of the goats stopped short at the doors of their owners' cottage, and bleated to demand admittance; while others, of their own accord, set off at a canter up the by-lanes leading to their homes, and were out of sight in an instant. The first welcome of a master or mistress for their goat, as well as the cow, is a handful of salt; and it is amusing to see with what eagerness they follow and lick the hand that allures them with it."

drink a great deal by mixing a little nitre or salt in their water. They may be milked in fifteen days after they have brought forth, and will continue to give a considerable quantity twice a day for four or five months.

In choosing goats for keeping to advantage, the following principles should be observed:—the male should have a large body, his legs straight and stiff, the neck short, the head small and slender, the beard and hair covering the body long, the horns large, and the eyes prominent: the female should have a large udder with large teats, and no horns, or very small ones.

The milk of the goat is sweet, nourishing, and medicinal; and, not being so apt to curdle on the stomach as that of the cow, it is preferable for those whose digestion is weak. The peculiarity of this animal's food gives the milk a flavour different from that either of the cow or sheep; for, as it generally feeds upon shrubby pastures and heathy mountains, there is an agreeable wildness in the taste very pleasing to such as are fond of that aliment. It is more wholesome than that of the sheep, and is used in medicine, curdles readily, and makes excellent cheese. The females will allow themselves to be sucked by young children, for whom their milk is excellent nourishment. Like the cow and sheep, it is said they are sucked by the viper, and also by a bird called the goat-sucker, which fastens to their teats during the night, and, as some say, causes them to lose their milk for ever after from the teat so sucked; but this circumstance has never been well established by authenticated proofs. It is, however, an undoubted fact, that they are sometimes deprived of the power of giving milk from one of their teats, from some cause or other, and never afterwards regain it.

The Welsh goats are superior in size, and in the length and fineness of hair, to those of most other mountainous countries. Their usual colour is white. We have seen the horns of a Cambrian he-goat three feet two inches long, and measuring three feet from tip to tip: but in this kingdom

the breeding of this useful quadruped has been on the decline for the last thirty years, and is now almost wholly confined to the mountainous parts of Caernarvonshire, where in many places the inhabitants suffer them to run wild on the rocks during winter as well as summer, and catch them in October, for the sake of their fat, either by shooting them with bullets, or running them down with dogs, like deer. The goats killed for this purpose are about four or five years old. Their suet will make candles far superior in whiteness and goodness to those made from that of either the sheep or the ox, and accordingly fetches a much higher price in the market: neither are the horns without their use, the country people making of them excellent handles for tucks and penknives. The skin is peculiarly well adapted for the glove manufactory, especially that of the kid. Abroad it is dressed and made into stockings, bed-ticks, bolsters,* bed-hangings, sheets, and even shirts. In the army it covers the horsemen's arms, and the foôt soldiers' knapsacks. As it takes a dye better than any other skin, it was formerly much used for hangings in the houses of people of fortune: being susceptible of the richest colours, when flowered and ornamented with gold and silver it became an elegant and superb article of furniture. From the skins of goats is manufactured what is generally called morocco leather, the best of which is made of the he-goat-skins. The countries most celebrated for this are Turkey and the Crimea; in the latter only the red and yellow moroccos are prepared, but these in point of quality are fully equal to those of Turkey. For leather of an inferior quality, and particularly such as is to receive a yellow colour, sheep-skins are often substituted.

* Bolsters made of the hair of a goat were in use in the days of Saul, as appears from Samuel, xix. 5, 13. The species very probably was the Angora goat, which is only found in the East, and whose soft and silky hair supplies a most luxurious couch.

The fleece of the sheep being considered so much more valuable than that of the goat, the latter animal has not been bred in any part of this kingdom with a view of deriving extensive emolument from it in this way; yet, with regard to the excellence of the fleece of the goat, we are indebted to Dr. Anderson for some interesting information. This indefatigable observer has remarked, that there are in England two varieties of goats, which are almost equally common. One of these has short, stiff hair; and the other a long, rough, and shaggy coat, usually either mottled, or wholly of a gray colour. In the latter there is a fine soft kind of wool, which grows at the roots of the long hair. It is a curious fact, nevertheless, that this circumstance is scarcely known to any persons in our country. The inhabitants of many parts of Russia, however, have been long acquainted with it, and for several years have been in the practice of separating it from the long hair, and manufacturing it into gloves, stockings, &c., on which they set a very high value. The first specimen of this wool that Dr. Anderson ever saw, was sent to him by a Russian lady, with a request that he would get it woven for her into shawls.

The quantity, which, unsorted, did not weigh much more than a pound, was too small to allow of its being made into a web by itself; the chain was, therefore, formed of silk, and the woof of fine yarn made from that wool. The fabric was compared with the finest of the Indian shawls; and, notwithstanding the hardness of the silk chain (the wool being infinitely softer than that substance), it was decidedly more soft and beautiful than any of them. Of the above-mentioned small quantity of wool, three full-sized shawls and one waistcoat were made, all of which were exceedingly admired by every person who saw them. The colour was a dull white, with a delicate, scarcely perceptible, tinge of red glancing through it. The ingenious narrator of this account informs us, that if he could have been furnished with a hundred of them for sale, he does not doubt that he should

have obtained as high a price as twenty guineas each for the whole. On being sent into Russia, they were deemed a proper present for the Empress, who expressed herself greatly pleased with them. Dr. Anderson examined many of the long-haired English goats, on which he found the very same substance. In some the quantity was considerable, and in others much smaller; but it was not wholly wanting in any of the animals that came under his inspection. In order to obtain this wool, the practice in Russia is, to have the goats first well washed towards the beginning of the summer; and after the fleece is dry, it is combed with a wide-toothed comb, and then with others closer set, which tear out the wool, whilst the longer hair remains adhering to the skin. Any hairs that may be accidentally blended with it are picked out, and it is ready for the hand of the manufacturer. The quantity from a single fleece has not been correctly ascertained; but it is probably so small as not to admit of being separated, with a view to profit, where manual labour of all kinds is so much more expensive than in other countries. The fact, however, is incontestably proved, that a variety of the goat species in Great Britain does actually produce a wool of perhaps finer quality than that which is yielded by any sheep whatever.*

The most valuable kind of hair of these goats, and particularly of the males, is that which grows on the haunches, where it is more closely set, and longer than on any other part of the animal. This is used by peruke makers for their best and whitest wigs; but it previously undergoes the usual process of baking and bleaching. The hair of the goat may be sheared as the wool from the sheep, and is excellent for making ropes that are to be used in the water, as they will last much longer than those made in the usual way.

* Anderson's *Recreations in Agriculture*, &c. vol. ii. p. 231.

ANGORA GOAT.

Chèvre d'Angora. Buff. *Angora Goat.* Penn.

The goat of Angora has the ears longer and broader in proportion than those of the common European goat, and the male has horns of about the same length, but of a black colour, and turned very differently, for they project out horizontally on each side of the head, and are twisted round in the manner of a cork-screw. The horns of the female are shorter, and encircle the ear somewhat like those of the ram. These animals are of a dazzling white colour, and all of them have very long, thick, fine, and glossy hair, which indeed is the case with almost all the animals of Syria. There are a great number of these goats about Angora, where the inhabitants carry on a considerable trade with their hair, which is imported, either raw or manufactured, into all parts of Europe. Nothing can exceed the beauty of the stuffs which are made from the hair of almost all the animals of that country, and which are well known among us by the name of *camlet*.

THE ASSYRIAN GOAT.

Capra Mambrica. Linn. *Chèvre Mambrine, ou Chèvre du Levant.* Buff.

This goat is somewhat larger than ours, with ears hanging down to the shoulder. The horns, on the contrary, are not above two inches and a half long, black, and bending a little backwards. The hair is of a fox colour, and under the throat there are two excrescences like the gills of a cock. These animals are chiefly kept in the neighbourhood of Aleppo for the sake of their milk. They are driven through the streets, and their milk is sold to the inhabitants as they pass along. Both the Assyrian and the Angora goat are of the same species with ours, as they intermix together, and will produce in these climates.

AFRICAN GOAT.

Capra depressa. LINN. *Bouc d'Afrique.* BUFF.

This is a small variety, or dwarf kind of goat, found in some parts of Africa; it has rough hair, and extremely short horns, which are very thick, triangular, and lie very close to the head: in the female they are still shorter than in the buck. This species is of a dark ash colour. In the middle of the head is a hairy tuft, standing upright. On both sides, between the eyes and the nose, there are two very deep cavities, greater than those of the other kinds, which contain a yellow oily liquor, coagulating into a black substance that has a smell between musk and civet, and which being taken away, the liquor again runs out and coagulates, as before. These cavities have no communication with the eyes, and consequently this oozing substance can have nothing of the nature of tears. Linnæus seems to have entertained an erroneous idea relative to the native country of this variety, as he supposes it to be an American animal.

LITTLE GOAT OF AMERICA.

It is about the size of a kid, but its hair is as long as that of the ordinary breed. The horns, which do not exceed the length of a man's finger, are thick, and bend downwards, so close to the head that they almost enter the skin. This is in every respect similar to the dwarf goat found in Africa, and may have been sent from that country; as it is certain that before the discovery of America by the Spaniards, the goat, and every other species of domestic animal, were unknown there.

JUDA GOAT.

Capra reversa. Linn. *Bouc de Juda.* Buff. *Whidaw Goat.* Penn.

This animal is common in Guinea, Angola, and all along the coasts of Africa; it is not much larger than a hare, but is extremely fat, and its flesh admirable in flavour. In that country it is indeed universally preferred to mutton.

THE IBEX.

Capra Ibex. Linn. *Le Boquetin.* Buff.

The common ibex, which is the steinbock of naturalists, is frequently confounded with the Caucasian ibex, to which it is intimately allied. According also to the opinions of Dr. Pallas and Mr. Pennant, this, as well as its ally, may have been the stock from which the common goat originated, which supposition is confirmed in the *Journal de Physique* for 1786, where there is an account of its breeding with the common domestic goat.

The male ibex resembles the tame goat in appearance, but is a larger animal: the head is small in proportion to the body, the eyes large, round, and brilliant; the horns are extremely large and long, bending backwards, sometimes measuring three feet in length, and weighing fifteen or eighteen pounds; they are also marked on the upper surface with very protuberant transverse knobs, or half circles, and are of a deep brown colour. The hair is long, and of a brownish or ash colour, with a streak of black running along the back; the belly and thighs are of a delicate fawn; the legs are slender, but strong, and the hoofs are sharp. The female is about one-third smaller than the male, and not so

corpulent; her horns not above ten inches long, and her colour is less tawny.

The flesh of the young ibex is said to be esteemed as an article of food. The period of gestation is the same as in other goats. The female exhibits the greatest tenderness and attachment for her offspring, defending it against the attacks of eagles and wolves.

These animals assemble in flocks of ten or fifteen, but generally fewer, in number. They feed during the night in the highest woods, but quit them at sunrise, and ascend the mountains, feeding in their progress until they have reached the most elevated places. They are generally seen on the sides of the mountains facing the east or south, lying down on the loftiest spots, and such as are most exposed to the sun; but in the decline of the sun they again commence feeding, and descend towards the woods, whither they also retire when it is likely to snow, and where they pass the winter.

The males, of six years old and upwards, haunt more elevated places than the females and younger animals; and as they advance in age they become more inclined to solitude. They also become gradually hardened against the effects of extreme cold, and not unfrequently live entirely alone.

The ibex is found in several parts of Europe and Asia, chiefly in the mountainous parts, especially on the Carpathian and Pyrenean mountains, the Rhætian Alps, Mount Taurus, the high lands between eastern Tartary and Siberia, and on the mountainous parts of the island of Candia.

The season for hunting the ibex is during August and September, when they are in good condition. The mountaineers alone engage in the chase; for it not only requires a head that can bear to look down from the most tremendous heights without terror, — address, and sure-footedness in the most difficult passes, but also great strength, vigour, and activity. Two or three hunters associate in this perilous occupation, armed with rifle-barrelled guns, and furnished

with small bags of provisions: they erect a miserable hut of turf among the heights, where, without fire or covering, they pass the night; and on waking in the morning often find the entrance blocked with snow, three or four feet deep. Sometimes, in the pursuit of this animal, being overtaken by darkness, amid crags and precipices, they are obliged to pass the night standing, embraced together, in order to support each other, and to prevent themselves from sleeping, and being frozen to death.

As these animals ascend into the highest regions very early in the morning, it is necessary to gain the heights before them, otherwise they scent the hunters, and betake themselves to flight. It would then be useless to follow them, for when once they begin to escape, they never stop until entirely out of danger; and some will run ten or twelve leagues before they rest.

The ibex will mount a perpendicular rock of fifteen feet at three leaps, or rather at three successive bounds. It does not appear as if he found any footing on the rock, but rather as if he touched it merely to be repelled, like an elastic substance striking against a hard body. If he is between two rocks which are near each other, and wants to reach the top, he leaps from the one side to the other, alternately, till he has attained the summit. Their fore-legs being shorter than the hind ones, these animals are thereby enabled to ascend with greater ease than they can descend; and on this account it is that nothing but the severest weather will induce them to go down into the valleys.

In its habits and manners this animal resembles the common goat, but possesses every attribute of strength and activity in a degree proportioned to its natural state of wildness. Its voice is a short, sharp whistle, not unlike that of the chamois, but of less continuance: sometimes it makes a kind of snort by breathing hard through the nostrils, and when young bleats like a sheep.

THE CAUCASIAN IBEX.

Capra Ægragrus. Linn. *Chèvre Sauvage.* Tavernier.

This species, also, is supposed by some naturalists to be the stock from which the domestic goat originated, is considerably above that animal in size, and in form resembles, in some measure, the stag. Its general colour is a brownish, or subferruginous gray above, and white beneath: the forehead is nearly black, which colour is continued down the back in a stripe. The chin is furnished with a large brownish beard; and the horns, which are very large, and bend considerably backwards, are smooth, black, sharply ridged on their superior part, and hollowed on their external side: they have no appearance of either knobs or rings, but are merely marked on the upper surface by some obscure undulations, or slight wavy wrinkles: they are about a yard in length, and are close at the base, about a foot distant at the middle part, and eight or nine inches at the tips. The female is destitute of both horns and beard.

In point of strength and agility, this species is at least equal, if not superior, to the common ibex: it inhabits the loftiest rocky points of Mount Caucasus, and particularly the parts about the rivers Kuban and Terek; almost all Asia Minor, and perhaps extends to India. It is said to abound on the hills of Laar and Chorazan, in Persia. Monardes affirms that it is found in Africa; and Mr. Pennant that it existed in Crete, and on the Alps. In the stomach of this animal, as in some of the antelopes and other quadrupeds, the bezoar is occasionally found.

THE CHAMOIS.

Capra Rupricapra. Linn. *Ysarus ou Sarris.* Buff.

Some naturalists have classed this animal in the catalogue of antelopes, while others have arranged it as belonging to the goat species; and to this latter arrangement we have given the preference, from the affinity which exists between the wild goat and the chamois. These two animals have the same customs, the same manners, and inhabit the same climate; yet the wild goat is endowed with more agility and strength, climbs to the summit of the highest mountains in search of food, while the chamois never ascends higher than the second stage; but neither of them are found in the plains. Both clear their way in the snow, and both bound from one rock to another, and run along those narrow ledges which are inaccessible to every other animal: both are covered with a firm and close skin, and clothed in winter with a double fur, with very rough hair outwardly, and a finer and thicker underneath; and both of them have a black stripe on the back, and tails nearly of the same size. When taken young, and brought up with domestic goats, the chamois are easily tamed, imbibe the same manners, herd together, and return to the same fold. The chamois sometimes comes even of its own accord and joins the flock of the domestic kind. Both are passionately fond of salt, and are inhabitants of Europe; whereas none of the antelope tribe, except the saiga, or Scythian antelope (which greatly resembles the goat), are to be found in this quarter of the globe. The horns of the chamois are slightly wrinkled at the base, but have no appearance of annulations, as in the antelope tribe: in other respects they are small and smooth, like those of the antelope. The most distinguishing differences between the chamois and the goat are, in its selec-

Pl. 19.

R. Sands. del. et fc.

CHAMOIS.

J. Le Keux, del. et fc.

IBEX.

R. Sands. del. et fc.

GUIB OR HARNESS'D ANTELOPE.

London: Published Nov. 1st 1829, by J. J. & Keux, Ponton Place, & R. Sands, Brewer St.

tion of food, in the lachrymal openings in the skin behind the horns, and in the absence of a beard. It is about the size of a domestic goat, and is most agreeably active and lively. In spring the hair of the chamois is short, like that of the doe, and of an ash colour; but in autumn it assumes a dun colour, inclining to black; and in winter it becomes a blackish brown. These animals are found in great numbers in the Alps of Dauphiny, Switzerland, and Italy; the Pyrenean mountains, Greece, Crete, and the mountains of Caucasus and Taurus. They are peaceful and gentle creatures, living in flocks of from four to fourscore, and even a hundred, dispersed upon the crags of the mountains. The large males are seen feeding detached from the rest, except in rutting time, when they approach the females, and drive away the young. The period of their coupling is from the beginning of October to the end of November, and the does bring forth in March and April. The young keeps with the dam about five months, and sometimes longer, if the hunters and the wolves do not separate them. It is asserted that the chamois live between twenty and thirty years. Their flesh is good food, and they are found to have ten or twelve pounds of suet, which is far superior to that of the goat in solidity and goodness. Unlike most other animals, the chamois has scarcely any cry, for it emits only a kind of feeble bleat, by which the parent calls its young. But in case of danger, and when it wishes to warn the rest of the flock, it makes a hissing noise, which is heard at a great distance; for it is to be observed, this creature is extremely vigilant, and has an exceedingly quick and penetrating eye. When it sees its enemy distinctly, it stops for a moment, and then, if the person be near, it flies off in an instant.

In the same manner it is able by its smell to discover a man at half a league distance, and gives its companions the earliest notice of his approach. Upon any alarm, therefore,

or any apprehension of danger, the chamois commences his hissing note, with such force that the rocks and the forests re-echo to the sound. The first hiss continues as long as the time of one inspiration; at first it is very sharp, and deeper towards the close. The animal having after this alarm reposed a moment, again looks round, and perceiving the reality of its fears, continues to hiss at intervals, until it has spread the alarm to a very great distance. During this time it seems in the most violent agitation; it strikes the ground with its fore foot, and sometimes with both—bounds from rock to rock—turns and looks round—runs to the edge of the precipice — and, still perceiving the enemy, flies with all its speed. The hissing of the male is much louder and sharper than that of the female; it is performed through the nose, and is properly nothing more than a very strong breath driven violently through a small aperture. The chamois feeds upon the best herbage, and chooses the most delicate parts of plants, their flowers, and tender buds; nor is it less dainty with regard to several aromatic herbs, which grow upon the sides of the mountains. It drinks but very little, while it feeds upon the most succulent herbage, and chews the cud in the intervals of eating.

This animal is greatly admired for the beauty of its eyes, which are round and sparkling, and which mark the warmth of its constitution. Its head is furnished with two small horns, of about half a foot long, of a beautiful black colour, and rising from the forehead, almost betwixt the eyes. Contrary to what we find in other animals, these parts, instead of inclining backwards or sideways, jut out forward, and bend backward a little at their extremities, in a small circle, like a hook, and end in a very sharp point. The ears are placed in a very elegant manner near the horns; and there are two stripes of black on each side of the face, the rest being of a whitish yellow hue, which never changes. The horn of this animal is often used for the heads

of canes: those of the female are smaller in size, and are less curved.

So much are these animals incommoded by heat, that they are never found in summer, except in the caverns of rocks, amidst fragments of unmelted ice, or under the shade of high and spreading trees, or of rough and hanging precipices, facing the north, and which entirely keep off the rays of the sun. They go to pasture both morning and evening, but seldom during the heat of the day. They run along the rocks with great ease and seeming indifference, and leap from one to the other, so that no dogs are able to pursue them. Nothing can be more extraordinary than to see them climbing and descending precipices utterly inaccessible to all other quadrupeds: they always mount and descend in an oblique direction, and throw themselves down a rock of thirty feet, alighting with great security upon some projection or fragment on the side of the precipice, just large enough for them to place their feet upon; they strike the rock, however, in their descent, with their feet three or four times, to stop the velocity of their motion; and when they have got upon the base below, they at once seem fixed and secure. In fact, when seen leaping in this manner, they appear rather to have wings than legs. Some, indeed, pretend to say, that they use their horns for climbing; but this wants confirmation. Certain it is, that their legs are well formed for this arduous employment, the hinder being rather longer than the fore ones, and bending in such a manner, that when they descend upon them, they break the force of the fall.

During the rigours of winter the chamois sleeps in the thickest forests, and feeds upon the shrubs and the buds of pine-trees. It sometimes turns up the snow with its foot to look for herbage; and where it is green makes a delicious repast. The more craggy and uneven the forest, the more this animal is pleased with its abode, which renders

them also more secure. Hunting the chamois is very laborious, and extremely difficult.

As they feed only in the morning and evening, and retire to caves and hollows during the day to avoid the avalanches, the hunter usually sets out on his expedition in the night, his object being to reach by break of day those elevated pastures where the wild chamois comes to feed. When he has arrived at the desired spot, he reconnoitres with a telescope, and if he finds not the chamois he ascends still higher; but if he discovers him, he endeavours to approach as near to him as possible, by passing round some eminence of rock, or gliding down some ravine. When sufficiently near, he rests his rifle upon a rock, takes aim, and very rarely misses his game. If he only wounds the animal, he pursues his prey, regardless of every danger, until he has secured the object of his expedition; and if the route by which he can best regain his village be difficult, he contents himself with skinning the chamois; but if the way be at all practicable with a load, he throws the animal across his shoulders, and bears it home to his family, undaunted by the distance he has to travel, or the dangerous precipices he has to cross.

It is particularly difficult to approach the chamois when many of them are feeding together; as it is usual for one of them to be placed as a sentinel upon some elevated rock, which commands a view of all the approaches to the pasturage; and when he perceives any object of alarm, he makes the sharp hissing noise, as before described, at the sound of which the rest run towards him, and if they discover a beast of prey or a hunter, they bound along, one after another, with the utmost speed, into the most inaccessible places. It is then that the skill of the hunter is called into the fullest action; for, being carried on by excitement, he knows no danger: he crosses the snows without thinking of the abysses they may cover; he plunges into the most dangerous passes of the mountains; he climbs up, and leaps from rock

to rock, without considering how he may return; and he is often benighted in the very heat of the pursuit. Still he is undaunted,—for he knows that during the darkness the chamois will stop as well as himself, and that on the morrow he may reach them. He then passes the night alone, without fire, without light; solacing himself with the scanty contents of his bag, which contains a bit of cheese and some barley bread, which is his ordinary food; and the latter is often so hard, that he is obliged to cut it with his axe, which he always carries with him to cut steps which may aid him to mount the rocks of ice. His frugal meal being ended, he places a stone under his head for a pillow, and is very soon asleep, — often dreaming of the way the chamois has taken. He is awakened in the morning by the keenness of the air, and rises pierced through with cold; he surveys the precipices, which he must yet climb; he drinks a little brandy (of which he always carries a small provision), throws his bag across his shoulder, and thus again rushes forward to encounter new dangers. These daring and persevering hunters often remain whole days and nights in the dreariest solitudes of the glaciers of Chamouni; during which time their families, and, above all, their unhappy wives, feel the utmost alarm for their safety.

Nevertheless, with a full knowledge of the dangers to be encountered, the chase of the chamois is the object of an irrepressible passion. Saussure knew a handsome young man, of the district of Chamouni, who was about to be married, and the adventurous hunter thus addressed the naturalist:—"My grandfather was killed in the chase of the chamois; my father was killed also; and I am so certain that I shall be killed myself, that I call this bag, which I always carry when hunting, my winding-sheet: I am sure that I shall have no other; and yet, if you were to offer to make my fortune, upon condition that I should renounce the chase of the chamois, I should refuse your kindness." Saussure

adds, that he went several journeys in the Alps with this young man; that he possessed astonishing skill and strength, but that his temerity exceeded either; and that two years afterwards he met the fate he had anticipated, in consequence of his foot failing on the brink of a precipice to which he had leaped. It is the chase itself, more than the value of the prey, which attracts these people; it is the alternation of hope and fear — the continual excitement — which render the chamois-hunter indifferent to all other pleasures.

Some also pursue this animal as they do the stag, by placing proper persons at all the passages of a glade or valley, and afterwards sending in others to rouse the game. Dogs are quite useless in this chase, as they rather alarm than overtake the prey. Nor is it without danger even to the men; for it often happens, that when the animal finds itself over-pressed, it drives at the hunter with its head, and frequently tumbles him down the neighbouring precipice. This animal cannot go upon ice when smooth; but if there be the least inequalities on its surface, it then bounds along in security, and quickly evades all pursuit.

The skin of the chamois was once famous, when tanned, for its softness and warmth; at present, however, since the art of tanning has been brought to greater perfection, the leather called *shammoy* is made also from those skins of the tame goat, the sheep, and the deer. Many medical virtues also were said to reside in the blood, fat, gall, and the concretion sometimes found in the stomach of this animal, called the German bezoar. The fat, mixed with milk, was affirmed to be good in ulcers of the lungs; the gall, to be useful in strengthening the sight; and the stone, which is generally about the size of a walnut, and blackish, was formerly in great request, as possessing the same virtues as oriental bezoar. However, in the present enlightened state of physic, all these medicines are quite out of repute; and, although we have the names of drugs

procurable from quadrupeds, yet, except musk or hartshorn, there are none in any great degree of reputation. It is true, the fat, the urine, the beak, and even the dung, of various animals, may be found efficacious, where better remedies are not to be procured; but they are greatly inferior to many at present in use, whose operations have been ascertained, and whose virtues are confirmed by repeated experience.

THE GAZELLES, OR ANTELOPES.

The gazelles can hardly be referred with propriety either to the goat or the deer, and yet they partake of both natures. Linnæus, in his former editions, and several other naturalists, have arranged them with the goat species; but Gmelin, Erxleben, and Pennant, have classed them as a distinct genus. Like the goat, they have *hollow horns that never fall;* in which respect they differ from the deer. They have a gall-bladder, which is found in the goat, and not in the deer; and, like the former animal, they browse upon shrubs rather than graze in pastures. On the other hand, many of them resemble the roebuck both in size and delicacy of form; and have deep pits under the eyes like that animal. They resemble it also in colour, and in the nature of their hair, as well as in the bunches upon their legs, which only differ in being on the fore legs of gazelles, and on the hind legs of the other. They seem, therefore, to be of a middle nature, between the roebuck and goat; but when we consider that the roebuck is an animal which is to be found in both continents, and that the goat, on the contrary, as well as the gazelle, belongs only to the old world,* we shall be induced

* None of this numerous species are found in America; they are mostly confined to Africa and Asia, inhabiting the hottest regions, or those regions of the temperate zones that border on the tropics; and none of them, except the saiga, are found in Europe.

to conclude, that the two latter are more nearly related to each other than to the roebuck.

The distinguishing marks of this tribe of animals, by which they differ both from the goat and the deer, are these: their horns are formed differently, being annulated, or ringed round, and having longitudinal depressions running from the bases to the point. They have bunches of hair upon their fore legs; and they have mostly a streak of black, red, or brown, running along the lower part of their sides, also three streaks of whitish hair on the internal side of the ear. Besides these, there are others which in general they are found to have, and which are more obvious to the beholder. Of all the animals in the world, the gazelle has the most beautiful eye, extremely brilliant, and yet so meek, that all the eastern poets compare the eyes of their mistresses to those of this animal. The epithet of gazelle-eyed is considered the highest compliment that a lover can pay; and, indeed, the Greeks themselves thought it no inelegant piece of flattery to compare the eyes of a beautiful woman to those of a cow.

The gazelle is, for the most part, more delicately and finely limbed than even the roebuck: its hair is as short, but finer and more glossy. The hinder legs of some of the species are longer than the fore ones, as in the hare, which gives it greater security in ascending and descending steep places. In swiftness it equals, if not surpasses, the roe, running and springing with vast bounds, and leaping with surprising elasticity. It frequently stops for a moment in the midst of its course to gaze at its pursuers, and then resumes its flight. The fleetness of the antelope, indeed, was proverbial in the country it inhabited, even in the earliest times: hence the speed of Ashuel (2 Sam. ii. 18) is beautifully compared to the tzebi; and the Gadites were said to be as swift as the antelopes (translated roes) upon the mountains.

Most of these animals are brown on the back and white under the belly, with a black stripe separating those colours.

Their tail is of various lengths, but in all is covered with rather long hair; and their ears are beautiful, well placed, and terminating in a point. They all have cloven hoofs, like the sheep; horns (as before observed) hollow, curiously curved, annulated with prominent rings or spirals, and not deciduous: they have eight broad, incisive teeth in the lower jaw, but none in the upper. The antelopes form a very large genus, the greater number of which have been discovered of late years; for it seems very probable that only two species were distinctly known to the ancients, namely, the antelope Cervicapra, or African antelope, and the antelope Bubalis, or cervine antelope. Buffon makes twelve varieties; and we may now reckon upwards of thirty varieties of this interesting animal.

Such is the present amount of the list of gazelles, most of which pretty nearly resemble the deer in form and delicacy of shape. They properly fill up, as has been already observed, the interval between the goat and the deer; so that it is difficult to tell where the former species terminates, and where the latter may be said to commence. If we compare the gazelles with each other, we shall find very slight distinctions between many of them. The turn or the magnitude of the horns, the different spots on the skin, or a difference of size in each, are chiefly the marks by which their varieties are to be known; but their way of living, their nature, and the peculiar swiftness of most of them, come under one description.

The gazelles are, in general, inhabitants of the warmer climates; and contribute, among other embellishments, to add beauty to those forests that are for ever green. They are often seen feeding in herds on the sides of the mountains, or in the shade of the woods; and fly all together upon the smallest approaches of danger.

They bound with such swiftness, and are generally so very shy, that dogs or men vainly attempt to pursue them. With ease and safety they traverse those precipices which,

to every other quadruped, are quite impracticable; nor can some of them be overtaken by any animals but those of the winged kind. Accordingly, in those countries where the fleetest are chiefly found, they are pursued by falcons; and this admirable manner of hunting forms one of the principal amusements of the higher ranks of people all over the East. The Arabians, Persians, and Turks, employ for this purpose that kind of hawk called the *falcon gentle*, with which, when properly trained, they go forth on horseback among the forests and the mountains, the falcon perching upon the hand of the hunter. Their expedition is conducted with profound silence; their dogs are taught to keep behind, while the men, on the fleetest coursers, look round for the game. Whenever they spy a gazelle at the proper distance, they point it out to the falcon, and encourage the bird to pursue it. With the swiftness of an arrow the falcon flies to the animal, which, conscious of its danger, endeavours, but too late, to escape. The falcon soon coming up with its prey, fixes its talons, one into the animal's cheek and the other in its throat, and deeply wounds it. On the other hand, the gazelle attempts to escape, but is generally wounded too deeply to run far. The falcon clings with the utmost perseverance, nor ever leaves its prey till it falls; upon which the hunters from behind approaching, take up both, and reward the falcon with the blood of the spoil. They also teach the young birds, by applying them to the dead animal's throat, and accustoming them betimes to fix upon that particular part; for if it should happen that the falcon fixed upon any other part of the gazelle — either its back or its haunches, the animal would easily escape among the mountains, and the hunter would also lose his falcon.

They sometimes hunt these animals with the ounce. This carnivorous and fierce creature having been tamed and domesticated, generally sits on horseback behind the hunter, and remains there with the utmost composure until the gazelle is shewn: it is then that it exerts all its arts and

fierceness; it does not at once fly at its prey, but approaches slily, turning and winding about until it comes within a proper distance, when all at once it bounds upon the heedless animal, and instantly kills it and sucks its blood. If, on the other hand, it misses its aim, it rests in its place without attempting to pursue it any farther, seemingly ashamed of its own inability.

There is still another way of taking the gazelle, which seems not so certain nor so amusing as either of the former. A tame gazelle is trained for this purpose, which is taught to join those of its kind wherever it perceives them. When the hunter, therefore, sees a herd of these animals together, he fixes a noose round the horns of the tame gazelle in such a manner that if the rest but touch it they are entangled; and thus prepared, he sends his gazelle among the rest. No sooner does the tame animal approach than the males of the herd instantly sally forth to oppose him; and in butting with their horns, are caught in the noose, when both struggling for some time, fall together to the ground; till at last the hunter comes up, disengages the one, and kills the other.

Upon the whole, however, these animals, whatever be the arts used to pursue them, are very difficult to be taken; for, as they are continually subject to alarms from carnivorous beasts, or from man, they keep chiefly in the most solitary and inaccessible places, and find their only protection from the dangerousness of the spot whither they retreat.

Professor Pallas, in his "Travels through different Provinces of Russia and Northern Asia," has also described the method of hunting the antelope, which is the principal amusement of the Tonguses, who inhabit the heaths of Daouria, beyond the lake Baikal. They choose for this purpose level and open tracts, near a river, mountain, or forest. In autumn, at which time their horses are most vigorous, they form companies of one hundred and fifty, or two hundred hunters, all on horseback, attended by led

horses. Each has a trained dog, and they are armed with bows and arrows.

This chace commonly lasts several days. Having arrived at the rendezvous, they send forward three or four sharp-sighted huntsmen to get a view of the game from the heights or mountains, who stop to wait for their companions as soon as they perceive the antelopes. When the troop comes in sight the scouts make signals to them, or by some evolutions of their horses signify the place in which the antelopes feed, and the course that must be taken in order to come up with them. The troop then breaks into several divisions, and the hunters separate to the distance of sixty or eighty fathoms from each other, in order to form a great ring. Those on the wings advance towards the pasturage of the herd, and endeavour to conceal themselves behind the heights till the animals are surrounded : the ring then closes. When, on the approach of the hunters, the antelopes attempt to escape, the men rush on them, chasing them from one party to another, and terrifying them with their shouts, and the whistling of their arrows, which, for that purpose, are furnished with a button of bone, perforated beneath the head : in this manner they kill all that they can reach. This chase is more successful when the scene of it lies near a river or a mountainous forest, as the antelopes or heath-goats never take to the water, though long and furiously harassed, but rather strive to escape by sudden and vast leaps through the troops of their pursuers. They are almost equally shy of forests ; for no sooner are they hunted into a wood than they are so bewildered among the trees as to be unable to move a hundred paces, but run their heads against every tree, and soon fall breathless.

The race of antelopes is famous for the concretion known by the name of *bezoar*. This word is supposed to be derived from the Arabic language, where it signifies antidote or counter-poison. It is found in the stomach and intestines of many animals, and brought over principally from the East

Indies. Like all other animal concretions, it is found to have a kind of nucleus, or hard substance within, upon which the external coatings are formed; for, upon being sawn through, it is seen to have layer over layer, as an onion.

This nucleus is of various kinds: sometimes the buds of a shrub, sometimes pieces of flint, stones of plumbs, tamarinds, seeds of cassia, and sometimes a marcasite. The stone itself varies from the size of an acorn to that of a pigeon's egg; and the larger it is the more valuable it is reckoned — its price increasing like that of a diamond. There was a time when a stone of this kind, weighing four ounces, sold in Europe for above two hundred pounds; but at present the price is greatly fallen, and they are in very little esteem. The bezoar is of various colours, sometimes of a blood colour, sometimes of a pale yellow, and of all the shades between these two. It is generally glossy, smooth, and has a fragrant smell, like that of ambergris. It has been given in vertigoes, epilepsies, palpitations of the heart, colic, and jaundice; and in those places where the dearness, and not the value of medicines, is consulted, in almost every disorder incident to man. In all cases it is perhaps equally efficacious, acting only as an absorbent powder, and possessing virtues not superior to common chalk, or crabs' claws. Judicious physicians have, therefore, discarded it; and this celebrated medicine is now chiefly consumed in countries where the knowledge of nature has been but little advanced. When this medicine was in its highest reputation, many arts were used to adulterate it; and many countries endeavoured to find out a bezoar of their own.

Thus we had occidental bezoar, brought from America; German bezoar, oriental bezoar, cow bezoar, and monkey bezoar. Yet whatever virtues ignorance may impute to these stones, experience has found but few cures performed by them; but it is well known that they often prove fatal to the animal that bears them.

There is a bezoar found in the gall-bladder of the boar,

and thence called hog bezoar, which is in very great esteem, but with as little justice as the former.

There has been much conflicting testimony among naturalists regarding the animal which produces the true oriental bezoar, which was once in such great repute all over the world for its medicinal virtues. Rumphius, Seba, and some others, have erroneously stated it to be the production of apes; but the concretions found in these animals are quite different from the oriental bezoar, which is certainly produced by a *ruminating* animal. The substance of the first is soft and porous; that of the latter hard and dry, and formed of concentric layers; and, from the testimonies of Thevenot, Chardin, and Tavernier, it seems that it is obtained more from sheep, and wild or domestic goats, than from the gazelles.

The ancients, both Greeks and Latins, had no knowledge of the bezoar. Galen is the first who speaks of its virtues against poison. The Arabs likewise praise the bezoar, as possessing those qualities; but neither the Greeks, Latins, nor Arabians, particularly describe the animals which produce it. Andreas Lacuno, a Spanish physician, says, "The oriental bezoar is extracted from a certain kind of wild goat which feeds upon the mountains of Persia." Amatus Lusitanus confirms these remarks; and adds, that this mountain goat greatly resembles the stag. Monard, who quotes the two last, still more positively affirms that this stone is produced from the internal parts of a mountain goat in India. Garcias ab Horton says, that in Khorassan and in Persia there is a kind of he-goat called pasans; and that it is in their stomachs the bezoar is found. Kaempfer, a minute observer of nature, being in the province of Laar, in Persia, says, that he went with the natives of that country to hunt the pasan, and he saw them extract the bezoar-stone from that animal. This he affirms to be the true oriental bezoar; but from the engraving he has given of this animal, we might be induced to believe his pasan to be a he-goat,

and not a gazelle, as he has given to it a *beard* resembling that of the goat. Chardin positively asserts, that oriental bezoar is found in the wild and domestic goats on the shore of the Persian Gulf, and in many provinces of India; and that in Persia it is also to be met with in sheep. Dutch travellers say the same; but some modern writers ascribe the production of the true oriental bezoar to the algazel, others to the pasan. Both these animals produce bezoar of a superior kind; both inhabit the same country, — the one living on the mountains, the other on the plains; and it is probable that there exists but little difference in the quality of this material, which both of them certainly produce. What can we infer from such a variety of testimonies and opinions? It is clear, then, that the oriental bezoar is not the production of one particular species of animal, but of many different ones, particularly the whole of the gazelle and goat kind, which, feeding upon odoriferous plants and herbs, give such a pleasing fragrance to these concretions. With respect to the occidental bezoars, we can affirm, they proceed neither from goats nor gazelles; for, instead of gazelles, we only meet with roebucks in the woods of America, and lamas and pacos, instead of wild goats and sheep, — animals of quite a different nature; but both the pacos and lama, and many other animals of America, produce bezoars; and if we comprehend under this name all concretions of this nature which are found in different animals, we may rest assured that there is scarcely an animal that does not produce some of them, either in the stomach, intestines, kidneys, bladder, or even the heart, not excepting crocodiles and alligators. We may, therefore, conclude, that, in general, the bezoar is only a residue of vegetable nutriment, which is not to be found in carnivorous animals, but is peculiar to those which feed on plants; that in the mountains of Asia, the herbs being stronger than in any other part of the world, the bezoar which is there produced has more esteemed virtues than any other; that in America,

where the heat is less and the mountain herbs weaker, the bezoars produced there are also inferior; and that in Europe, where the herbs are still weaker, and in all the valleys of both continents, where they are coarse, no bezoars are produced, but only *ægagropili*, and these consist merely of hair, roots, or filaments, which the animals are unable to digest.

THE HARNESSED ANTELOPE.

Le Guib. Buff. *Antelope Scripta.* Pall.

These animals, great herds of which are found in the woods and plains of the country of Poder, in Africa, are most singularly marked with two longitudinal bands running along each side, crossed by two others descending from the back, and also by three white lines pointing downwards from the rump to the thigh. The relief of these white lists upon a brown or tawny ground, which is the general colour of the animal, has very much the appearance of harness; from which circumstance it has derived the name of the harnessed antelope. Beneath each eye is a white spot; the under part of the neck and a part of the face are white; and there are several whitish spots upon the thighs. The forehead and ridge of the back are black; the horns are nearly straight, tapering, sharp-pointed, and inclining backward; and they have two spiral edges along their whole length, which is about nine inches.

THE STRIPED ANTELOPE.

Antelope Strepsiceros. Pallas. *Le Condoma.* Buff. *Le Condous.* Cuv.

This animal, which has been wrongly named Condoma by Buffon, is as large as a stag, and is also remarkable for a white line extending along the back, and several white stripes

(generally seven in number) across from that, down the sides towards the belly and thighs. The horns are remarkable for their length, which is about four feet,—are twisted spirally, and compressed sideways, with a ridge on one side following the wreaths : they are very close at the base, and two feet seven inches distant at their points, which are round and sharp. In the upper jaw is a hard bony substance, disposed in ridges.

This species inhabits the Cape of Good Hope. It leaps to an amazing height: Dr. Forster says, he saw one leap a fence ten feet high.

THE SCYTHIAN ANTELOPE.

Capra Tartarica. Linn. *Le Saiga.* Buff.

The Scythian antelope or saiga is the only one of the species that is found in Europe The general form of its body very much resembles that of the domestic goat; and, like that animal, it has a strong scent, and is fond of salt; but its horns are those of the antelope, being marked by very prominent rings, with furrows between : they are a foot in length, the tips smooth, of a pale yellow colour, and semi-transparent. During summer the hair is very short, and of a gray hue, mixed with yellow ; the cheeks whitish, forehead and crown hoary, covered with long hairs; the under side of the neck and body white. The winter coat is long and rough ; the tail about four inches long, ending with a tuft. It is equal in size to the fallow deer, and the female is destitute of horns.

These animals inhabit all the deserts from the Danube and Dnieper to the river Irtish, but not beyond : they are, therefore, found in Poland, Moldavia, about Mount Caucasus and the Caspian Sea, and in Siberia, in the dreary open deserts, where salt springs abound, feeding on the salt, and the acrid and aromatic plants of those countries. The

females are in a state of gestation during the winter, and bring forth in May, in the northern deserts. They have but one at a time; and the young are covered with a soft fleece like a newly-dropped lamb. They are regularly migratory: late in autumn, in the rutting season, they collect in flocks of thousands, and retire into the southern deserts: in spring they separate into little flocks, and return northward. They rarely all lie down at the same time, but by a providential instinct, some are always keeping watch; and when they are tired, they seemingly give notice to those which have taken their rest, who instantly arise and relieve the sentinels of the preceding hours; and thus they often preserve themselves from the attack of wolves and huntsmen. They are exceedingly swift, and will outrun the fleetest horse or greyhound; yet, partly through timidity, and partly on account of the shortness of their breath, they very soon become the prey of the hunter. If they are but bitten by a dog, they instantly fall down; nor will they even offer to rise again. They are sometimes shot by the hunter; and are also taken by the black eagle, which is trained for that purpose. In summer they are almost purblind, which is another cause of their destruction. This is occasioned by the heat of the sun, and the splendour of the yellow deserts, where they live in a wild state. They seem to have no voice,—yet when brought up tame, the young utter a short kind of bleating, like the sheep.

THE WOOD ANTELOPE.

Antelope Sylvatica. Sparmann. *Le Bosbock.* Buff.

Its horns are about ten inches long, of a black colour, and have three sides wreathed in a spiral direction towards the top; at the bottom they are rough, in consequence of a number of wavy rings, which, however, do not rise much above the surface; but at the top they are round, sharp-

Pl. 20.

R. Sands del et fc.

WOOD ANTELOPE.

J. Le Keux del et fc

SPRINGER.

R. Sands del et fc

ELK ANTELOPE.

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pointed, and as smooth as if they had been polished. This animal is about two feet and a half high, of a dark brown colour, with two large round white spots on each cheek, and several smaller white ones scattered over the haunches; a narrow line of white hair, too, extends along the back, from the neck to the tail, but is not very perceptible, it being partially hidden by the length of the dark brown hairs on the top of the back. There are also several narrow bands of white hair crossing the back: on the other parts of the body the hair is long, like that of the goat.

The wood antelope is found chiefly in the woods and groves about the Cape of Good Hope. It runs but slowly when compared with the speed of some of the antelope species, and is sometimes caught with dogs. When it runs it carries its head straight forward, laying its horns back upon its neck to prevent their being entangled in the bushes; but as the female is without horns, she runs more freely through the forest, and is not so easily caught as the male. The latter, when it finds no resource from the dogs by its speed, will boldly put itself in a posture of defence, by kneeling down when about to butt; and, in that position, sells its life at a dear rate, killing and goring the most spirited hounds which first venture to the attack. The voice of this animal resembles the barking of a dog.

THE BLUE ANTELOPE.

Antelope Leucophæa. Pall. Gmel. Cuv. *Blue Antelope.* Penn.

The horns of this species are sharp-pointed, taper, arcuated, bending backwards, marked with twenty prominent rings, but smooth towards the point, and about twenty inches in length; the ears long, and sharply pointed; beneath each eye is a large white spot; the hair is long, and the tail is about seven inches in length, terminated by a tuft of hair about six inches long. This animal is larger than

the roebuck. Its colour, when alive, is a fine blue, of a velvety appearance; but, when dead, it changes to a bluish gray, with a mixture of white.

It is a very shy animal, and inhabits the hottest parts of Africa; yet is occasionally found near the Dutch settlements at the Cape of Good Hope; but in the more uncultivated parts of the country they are met with in great abundance, and of various colours. Many of them are beautifully spotted with red, white, and brown. Pennant says, "This is the species which, from the form of the horns and the length of the hair, seems to connect the goat and antelope race."

THE SPRINGER.

La Gazelle à bourse sur le dos. Buff. *A. Euchore.* Cuv.

The predominant colour of this animal is a pale yellowish brown; the belly, breast, and inside of the limbs, are white; as is also the head, excepting a dark brown list, which passes from each corner of the mouth, over the eyes, to the base of the horns. From the tail halfway up the back is a stripe of white, bounded on each side by a dark brown list, and a stripe of the same colour extends on each side, from the shoulders to the haunches, forming a contrasting boundary between the snowy whiteness of the belly and the rusty colour of the sides. The tail is very slender, not being thicker than a goose-quill at the lower part, which reaches to nearly the first joint of the leg; the ears are of an ash colour, tipped on the edges with fine light gray hairs. The hair in general is short and fine; but the dark line which borders the white consists of longer hairs, which the animal is able to expand at pleasure, to the breadth of eight or nine inches, particularly when taking a leap. The height of this animal is about two feet and a half; the length of the horns, measuring them along the curvature, is nine inches; their distance at the base, where they are nearly three inches

thick, is not more than one inch; and they gradually widen from thence to the distance of five inches, when they turn inwards, and nearly approach each other at the tips. They are of a deep black colour, annulated above half way up, are smooth towards the top, and terminate in a sharp point.

This animal inhabits the Cape of Good Hope, and is there called the *spring bock*, from the prodigious leaps it takes when any person suddenly appears; and when thus alarmed, it has the power of extending the white space about the tail into the form of a circle, which returns to its linear form when the animal is tranquil. When pursued, it is pleasing and curious to see the whole herd leaping to a considerable height over each other's heads; and they will sometimes take three or four leaps successively. In this situation they seem suspended in the air, looking over their shoulders at their pursuers, and forming the radius of the white part about the tail in a most beautiful manner. They are extremely swift, and it must be a good horse that can overtake them. They migrate annually from the interior of the country in small herds, and continue near the Cape for two or three months, and then retreat towards the north in herds of many thousands, covering the great plains for several hours in their passage.

They are attended in these migrations by numbers of lions, hyænas, and other wild beasts of prey, which commit great devastation among them. They also make periodical migrations, in seven or eight years, in herds of many thousands, from the north, being probably compelled to leave their haunts in the Terra de Natal by the excessive drought of that region, where it sometimes happens that not a drop of rain falls for two or three years. In these migrations they spread over the whole country of Caffraria, which they desolate, not leaving a blade of grass. Their flesh is excellent; and, with other antelopes, they furnish the venison of the Cape.

THE ELK ANTELOPE.

Le Condous. Buff. *Indian Antelope.* Penn.

Pennant says this animal has been improperly called Condous by Buffon, the name properly belonging to his Condoma. It inhabits India, Congo, and the southern parts of Africa, and is one of the larger kind of gazelles, being five feet in height at the shoulders, is thick-bodied, and strongly made, but the legs are slender. The horns are nearly straight, two feet in length, marked with two prominent spiral ribs, running almost two-thirds of their length, but smooth towards the ends, which are turned a little inwards; the forehead is broad, and has a stripe of long loose hairs extending down the front of the face; its nose is sharp, and its breast has a sort of dewlap, at the lower part of which is a tuft of black hair.

This animal is of a dark ash colour, inclining a little towards blue, tinged with red. Along the neck and back extends a thin upright mane, quite black; the tail, which does not reach to the first joint of the leg, is covered with short cinereous hair, and is terminated with a tuft of black hair. The females have horns similar to the males, but not so large.

In this species the *sinus lacrymalis* is wanting. They live in herds; but the old males are often solitary. They grow very fat, especially about the breast and heart, so that they are easily caught; and when pursued, will sometimes fall down dead during the chase. They run but slowly, and when roused always go against the wind; nor can the hunters (even if they front the herd) divert them from their course. Their flesh is delicious and juicy.

THE BROWN ANTELOPE.

Lidmeé. SHAW'S TRAVELS.

This kind is less than the roebuck; has horns like the last; face, back, and sides, of a very deep brown, the latter bordered with tawny; belly and inside of the legs white, above each hoof is a black spot; the tail black above, and white beneath. It inhabits Bengal.

THE BARBARY ANTELOPE.

Capra Dorcas. LINN. *La Gazelle.* BUFF.

We find these animals in Persia, India, and the north of Africa, where they live in large troops, and these, when attacked, form a ring, and present their horns to their enemy. Their height is about two feet four inches, and the length, from the nose to the nail, about three feet nine inches; the horns about twelve inches long, round, inclining first backwards, bending in the middle, and then reverting forwards at their ends, and annulated with about thirteen rings on their lower part: the upper side of the body is of a reddish brown, the lower part and haunches white; along the sides the two colours are separated from each other by a strong dusky line. The Barbary antelope is easily tamed; and its habits furnish numerous images to the sprightly poetry of the Arabs.

THE CORINE ANTELOPE

(*Le Corine.* BUFF. *A. Corrina.* PALL.)

Is a variety of the former, from which it only differs in having the horns more slender.

THE LEUCORYX ANTELOPE

(*Leucoryx*. PENN. *Oryx*. OPPIAN.)

Is a species which inhabits Gow Bahrein, an island in the Gulf of Bassora: it has long horns, very slightly incurvated, slender, black, pointed, and annulated partly, from the base; the body is thick and inelegant, but the limbs are better proportioned; the nose is broad and thick, resembling that of the ox; and the ears somewhat slouching. It is about the size of a small cow; the body is of a pure white; the middle of the face, the sides of the cheeks, and the limbs, are tinged with red; the tail is rather long, and tufted at the end. The rutting time is in autumn, and they bring forth in the spring.

THE KEVEL, OR FLAT-HORNED ANTELOPE.

Kevella. LINN. *Kevel*. BUFF.

This is the flat-horned antelope of Pennant: it has large horns, which are flattened, and bent in the form of a lyre; the fur is yellowish, with pale streaks, and a dark-coloured band runs along each side. This animal inhabits Barbary, Senegal, and Persia. It is about the size of a small roe, lives in large flocks, and, like most species of the antelope, is reckoned very delicate food, though it has a musky odour when alive. In both sexes the horns are surrounded with prominent rings, usually from fourteen to eighteen in number, except the ends, which are smooth. They are bent in the same manner with those of the Barbary antelope, or dorcas; and in general the two animals resemble each other very much, except that the horns of this species are flattened, and have a greater number of rings.

THE WHITE-FACED ANTELOPE

(*A. Pygarga.* PALL. *Klipspringer.* SPARMANN.)

Is very similar to the preceding, but larger. Like that, its horns are flattened; but those of the female are said to be smooth; the face, and the space between the horns, are of a pure white; the cheeks and neck are of a fine bright bay; sides, flanks, and shoulders, of a deep brown, separated from the belly by a broad band of a dark colour. In size it exceeds the buck or fallow deer. It inhabits the country north of the Cape of Good Hope, is exceedingly swift, and makes large bounds, even on the most rocky places and on the steepest precipices, where it cannot be easily caught with hounds.

THE GAMBIAN ANTELOPE.

Le Kob, ou petite Vache brune. BUFF.

This is the Lerwee of Shaw. It inhabits Africa, chiefly about the rivers Gambia and Senegal; is about the size of a fallow deer, and is remarkable for a tuft of hair on the nape of the neck, and for having long brushes of hair on the knees of the fore legs. Its horns are about thirteen inches in length, and five and a half in circumference at the base, where they are pretty close, and the points also approach near to each other, but they are more distant in the middle, are bent backwards, and are wrinkled.

THE CHINESE ANTELOPE.

Tzerian. BUFF. *A. Guttorosa.* PALLAS.

The Monguls call this species Dseren; the Chinese Hoang Yang and Whan Yang, or Yellow Goats.* They

* Du Halde, vol. ii. p. 253.

abound in the country of the Mongul Tartars, and the deserts between Thibet and China, and along the river Amur, to the Eastern Sea. They are very swift, take prodigious leaps, and when frightened will bound over a space of sixteen or eighteen feet at one spring. They delight in dry and rocky plains, and shun water; nor will they go into it even to save their lives, when driven by men or dogs to the brink of a stream. They are likewise afraid of woods, and always avoid them. They herd together in small flocks in the spring and summer, and collect in great numbers in the winter. In running they form a file or long line, one after another — an old one usually leading the way. On the approach of winter their hair grows long, rough, and hoary, so that at a distance it appears almost white. In the beginning of May the animal changes its coat for one very short, close, and tawny; the neck is very prominent, in consequence of the largeness of the windpipe; and they have a large pouch under the belly. The length of the male, from nose to tail, is about four feet and a half; the head rather thick, with horns about nine inches long, opaque, of a yellow colour, annulated almost to the ends, reclining backwards, with their points bending towards each other.

THE PASAN, OR GEMS-BOCK.

Capra Gazella. LINN. *Le Pasan.* BUFF.

This animal is about the size of a fallow deer; the horns are distinctly annulated, and three feet in length, the points very sharp, and about fourteen inches asunder; the greater part of the face is white, with a black mark, which commences at the base of the horns, passing down the middle, where it joins a transverse band on the nose; from this springs another mark, pointing upwards towards the eye, and reaching downward to the throat. The body and sides are of a reddish ash colour; the belly and legs are white. The

white colour of the former is divided on the sides from the reddish, ash-coloured upper parts, by a broad, longitudinal, dark band; the thighs and upper part of the fore legs are also marked with the same colour; the tail is nearly two feet long, and is covered with longish black hairs. It inhabits Persia, India, Egypt, Ethiopia, and the Cape of Good Hope. This singular species, which lives in pairs, and not in herds, is the Oryx of Ælian; and one of them being caught which had lost a horn, gave rise to, or rather continued, the stories of the unicorn,* about which there has been so much dispute.

It is a beautiful animal, and has none of that timidity which generally marks the character of the antelope; but, on the contrary, if closely pursued or wounded, will coolly sit down on its haunches, and keep both sportsman and dogs at bay. It employs its long, straight, sharp-pointed horns, used in defence by striking back with its head, which renders it dangerous to approach it. Dogs are very frequently killed by it; and no peasant, after wounding the animal, will venture within its reach till it be dead, or its strength at least exhausted. The flesh of the gems-bock is reckoned to be the best venison that Africa produces.

* It is supposed, by comparative anatomists, that the rhinoceros was the unicorn of Scripture. The existence of a ruminating, cloven-footed animal, with one horn, has been said by Camper to be an impossibility; the frontal bone being originally divided in two, a horn could not have grown in the centre of the division. We know that coarse figures, representing an animal with one horn, have been traced on the rocks by savages; but from their ignorance of perspective, they drew the animal in *profile*, and could thus only represent one horn. Many of the profiles of quadrupeds have only one leg before, and one behind; consequently the same applies to the horns; and the Oryx of the Egyptian monuments is most probably but the production of a similarly crude style.

THE HART-BEEST.

A. Bubalis. Cuv. *Le Bubale.* Buff.

This animal is supposed to be the Bubalus of the ancients, and is the most common of all the larger gazelles known in Africa. Its height to the top of the shoulders is about four feet: the form of the body is a mixture of the stag and heifer; the tail is rather more than a foot long, asinine, and terminated by a tuft of hair; the horns are very strong, black, and embossed with rings of an irregular form: they are almost close at the base, diverging upwards, and at the top bending backwards in a horizontal direction, almost to the tips, which are distant from each other. Some of these horns are eighteen inches long, and above ten inches in girth at the base. The head is rather large, resembling that of an ox; and the eyes are placed very high. The general colour of this animal is a dark cinnamon, except the rump and inner part of the thighs, which are white: the front of the head is marked with black, as is likewise the fore part of the legs. There is a pore about an inch below each eye, from which a matter is distilled: this the Hottentots preserve as a rare and valuable medicine. The large head and high forehead, together with the asinine ears and tail of this animal, render it less handsome than many of the tribe of antelopes. They associate in great herds; and although they seemingly gallop with a heavy pace, yet they run as fast as any of the larger kinds; and when they have once got a head of their pursuers, they are very apt to turn round and gaze at them. Like the wood antelope and nil-ghau, this animal drops on its knees to fight. The flesh is fine, and of an agreeable flavour, but dry.

Pl 21

S.Daniels del. THE HART BEEST. R.Sands fc

S.Daniels del. THE GEMSE-BOK. R.Sands fc

J.Le Roux del et fc

THE COMMON ANTELOPE.

London Published Feb.1st 1830. by J.Le Roux Penton Place. & R.Sands Brewer St.

THE COMMON ANTELOPE.

Capra Cervicapra. Linn. *L'Antelope.* Buff.

Of this numerous tribe of animals, there is perhaps no species so truly elegant in its appearance as this; and although it is one of the commonest, yet its habits are but little known. It is very numerous in Barbary, and in all the northern parts of Africa. In size it is rather smaller than the fallow deer. Its colour is a dusky brown, mixed with red; the belly, breast, and inside of the limbs, are white; and on the head, back, and outside of the limbs, the hair is darker than on any other part; the orbits of the eyes are white, and there is a small patch of the same colour on each side of the forehead; the tail is short. The horns, which are about sixteen inches long, are black, distinctly annulated almost to the top, and have three curves: the *brachia*, or sides of the lyre, were frequently made of these horns, as appears from ancient gems. The female is destitute of horns, and may also be known by a white stripe on the flanks.

THE SWIFT ANTELOPE.

Le Nanguer. Buff. *A. Dama.* Pallas.

This antelope has its horns hooked forward at the ends. The upper parts of the body are of a tawny yellow; the under parts white, with a white spot on the chest. It is the dama of Pliny, Gesner, Ray, &c., and the swift antelope of Pennant. It inhabits Senegal; and is three feet ten inches in length from the nose to the origin of the tail; and two feet eight inches high at the shoulder. The greater part of the body is white; but the back, upper part of the sides, and the head, are tawny, or yellowish. There are, however, varieties as to colour.

Both sexes have round horns, about eight inches long, bent or hooked forwards, and sharp-pointed. There are only *six* fore-teeth in the lower jaw. The Nanguer is the swiftest of the genus, and can be but rarely taken; yet it is easily tamed. Ælian compares its flight to the rapidity of a whirlwind.

THE RED ANTELOPE

(*Le Nagor.* Buff. *Antelope Redunca.* Pallas.)

Is very similar to the preceding, with horns five inches and a half long, having one or two slight rings at the base; the ears are much longer than the horns; the hair is stiff, and on all parts of a reddish colour, but palest on the chest. It inhabits Senegal and the Cape, is about two feet three inches in height, and four feet in length.

THE SENEGAL ANTELOPE.

Le Koba. Buff.

The horns of this species are thick, and annulated very close at the roots, much bent in the middle, then approaching, and receding at the ends, which are smooth, sharp, and bent backwards. This animal, which inhabits Senegal, is a large species, being seven feet long. The head is large and clumsy, with long ears; the horns are about seventeen inches in length, and are surrounded with fifteen prominent rings; the head and body are of a reddish brown colour, with a narrow black list down the hinder part of the neck; the rump is a dingy white; and there is a dusky mark on each knee, and above each fetlock joint. The tail is about a foot long, and is covered with longish black hairs.

THE BEZOAR ANTELOPE.

Capra Bezoartica. LINN. *Algazel.* BUFF.

This species inhabits India, Persia, Egypt, and Ethiopia: it runs swiftly up hill, but slowly on level ground. It is gregarious, and is easily tamed. The general colour of the fur is red, with a white breast, belly, and buttocks; the horns are very long, slender, upright, and bending at the upper part towards each other. Some are smooth, and others much annulated.

THE AFRICAN ANTELOPE.

A. Oreotragus. CUV. *Le Klippspringer.* BUFF.

The horns are very straight, short, tapering, sharp-pointed, and slightly wrinkled at the bases; the head is of a reddish colour; the upper parts of the body a greenish yellow, and the under parts of a whitish ash-colour; the tail is very short. This antelope runs with such swiftness, and makes such large bounds, even upon the most rocky places, that it generally eludes the hunter and dogs. It inhabits the Cape of Good Hope.

THE GUINEA ANTELOPE.

Capra Grimmia. LINN. *La Grimme.* BUFF.

Dr. Grimm, from whom this animal takes its name, was the first person that described the species. He represents it as hornless; but he evidently only saw the female, as the male has straight black horns, about three inches long, slightly annulated at the base, slender, and sharp at the points. The form of this little animal is most elegant, and its height does not exceed eighteen inches. The colour of

the neck and body is brown, mixed with cinereous, and a tinge of yellow; the belly is white, as is also the under part of the tail, which is short; and it is remarkable for an upright, pointed tuft of strong black hair, rising from the top of its forehead, about two inches and a half high, between the horns. Beneath each eye is a cavity that contains a strong-scented oily liquor, which smells somewhat like musk; and when exposed to the air, becomes black and hard. This species lives among the brush-wood, in that part of Africa between Guinea and the Cape of Good Hope.

THE ELAND.

This is a variety of the oreas of the Systema Naturæ, or Indian antelope; and to that accurate delineator of nature, Mr. Daniels, are we indebted for permission to make the representations which we have given of the male and female eland. This species is the largest and most awkward of the antelope tribe in Southern Africa; the body, legs, and hoofs, are completely bovine, as are also the head, the thick neck, and the remarkable dewlap of the male. Its size, its habits, and general appearance, partake more of the ox than the antelope; and the only affinity to the latter is indicated by the horns and the tail. The female is distinguished by her tapering and slender horns, which are distinctly annulated at the base: her form is also of a more delicate character than that of the male, and she has a peculiar oval mark on her rump, and another on each side of the upper part of her body. Both the male and female have a dark mark upon the upper part of the throat, reaching downwards to the dewlap. Whole herds are met with consisting entirely of females, arising from the circumstance of the males being much larger, fatter, and of a tougher hide than the females; they are consequently always selected from the herd by the hunters, chased down with dogs, or killed with the musket;

S. Daniels del. R. Sands fc.

THE MALE ELAND.

S. Daniels del. R. Sands fc.

FEMALE ELAND.

J. Le Keux fc. R. Sands Junr. del.

THE MEMINNA MUSK. | THE CHEVROTAIN.

London Published Feb. 1st 1830. by J. Le Keux Penton Place & R. Sands Brewer St.

and from the ease with which this animal is taken, from the value of its flesh as food, and of its skin for harness, &c., few of them now remain within the limits of the colony of the Cape of Good Hope; it must, therefore, in all probability, in a few years be a very scarce animal in the southern angle of Africa. They are subject to a disease, which also makes great havoc in the herds, called the *brandt sickte*.

It is remarkable that the eland herds with that singular animal the gnu, and with the quacha; which circumstance may perhaps account in some measure for the variety which the species of the former exhibits.

THE CHEVROTAIN.

A. Pygmea. Cuv. *Le Chevrotain de Guinée.* Buff.

This is certainly the most beautiful of all the antelope tribe, as well as the smallest of all the cloven-footed quadrupeds, being not more than *seven* inches in height; and its fore legs at the smallest part are not thicker than a tobacco-pipe. The horns are straight, about two inches long, and are as black and shining as jet. The hair of these elegant little creatures is a reddish brown, and in some of a beautiful yellow, very short and glossy. They are natives of Senegal and the hottest parts of Africa; but are also found in India, and in many of the islands adjoining that vast continent. They are said to be so active as to be able to leap over a wall ten feet high.

THE PERSIAN ANTELOPE.

In size and habit this animal resembles the roe. It lives in large flocks, and subsists chiefly on the *artemisa pontica*. The horns are about thirteen inches long, smooth at the points, and bent in the form of a lyre; the upper part of the body is of a brownish ash-colour; the under parts pure

white, with a yellowish-white stripe along each side. The throat has a protuberance in front, and the knees are furnished with tufts of hair. It inhabits that part of Persia which lies between the Caspian and Euxine Seas.

THE CORINE ANTELOPE.

Le Corine. Buff.

This animal has horns that are also slightly bent in the shape of a lyre, short, smooth, and slender; the upper parts of the body are yellowish tawny; the under parts white, with a dusky stripe along each side, and two lines on each side of the face — the upper one white, and the other black. This species, which is less than a roe, and is found in Senegal, resembles the kevel in colour, swiftness, and its musky odour.

THE INDOSTAN ANTELOPE

(*Antelope Trago-camelus.* Pallas. *Indostan Ant.* Pennant.)

Is of a less elegant form than most of the other species, and seems to resemble the camel, having a strong, bending neck, with a large lump on the shoulders, like the Indian ox, tufted with hair: on the lower parts of the breast the skin hangs like the dewlap of a cow. The horns are seven inches long, and bending forward. The height of the animal is about four feet. It lies down and rises like a camel; and its voice is a sort of croaking, or like the rattling noise made by deer in the rutting season. It inhabits the most distant part of the Mogul dominions.

Pl. 23.

R. Sands fc.

NYL - GHAU.

R. Sands, fc.

THE MUSK.

London: Published Augt 1st 1829 by J. Le Keux, Fenton Place, & R. Sands, Brewer St.

THE NYL-GHAU.

Antelope Picta. Pall. *Le Nil Gaut.* Buff.

Most of these interesting animals which have been brought to England have been obtained from Surat or Bombay; and it is conjectured that they are indigenous in the province of Guzerat. The nyl-ghau is larger than any ruminant of this country except the ox, it being of greater size than the deer, and rather smaller than the black cattle; and in its form there is a very evident mixture of both. Although, too, it is classed with the antelopes, Dr. Hunter, who first dissected and described it, apprehends that it is a new species. Its horns are seven inches long, six inches round at the roots, tapering by degrees, and terminating in a blunt point; the ears are large and beautiful, and spread to a considerable breadth: they are white on the edge and on the inside, except where two black bands mark the hollow of the ear with a zebra-like variety. The general colour of the animal is ash or gray, from a mixture of black hairs and white, most of which are half white towards the root, and half black; along the ridge of the neck and the back the hairs form a short and thin upright mane; at the throat is a shield-like mark of beautiful hair; and lower down, on the beginning of the convexity of the neck, there is a remarkable tuft of long black hair. The height of the animal is about four feet one inch at the shoulder. The female differs from the male both in height and thickness, she being much smaller, and in shape more resembling the deer, and having no horns. She brings forth usually one at a birth, and sometimes two.

The nyl-ghau has six grinders in each jaw, and eight cutting teeth in the lower one: it eats oats, is fond of grass and hay, and still fonder of wheaten bread; when thirsty it will drink two gallons of water. It is vicious and fierce in the rutting season, but tame and gentle at other times; and should it prove docile enough to be easily trained to labour,

its great swiftness and considerable strength might be applied to valuable purposes, as it is evident from experience that it will breed in this country. When the males fight, they prepare for the attack at a distance from each other, by falling down upon their knees; and in this attitude they approach, and when they are sufficiently near, spring and dart at each other with great violence.

In a state of confinement they often fall into that posture without doing any mischief. They will, notwithstanding, attack mankind unprovoked. A labourer, who was looking over some pales which enclosed several of them, was alarmed by one of them flying at him with the quickness of lightning; but the wood-work which separated him from the animal was the means of his safety, as it dashed it to pieces, and broke off one of its horns close to the root. The death of the animal, which happened soon after, was supposed to be owing to the injury it received from the blow.

In the days of Aurungzebe they abounded between Delhi and Lahor, on the way to Cachemire; and they were once objects of chase with that mighty prince during his journey. They were enclosed in nets by his army of hunters, which, being drawn closer and closer, at length formed a small space; into this the king, his omrahs, and hunters, entered, and killed the animals with arrows, spears, or muskets; and sometimes in such numbers, that Aurungzebe used to send quarters as presents to all his great people, which proves that they are esteemed as good and delicious food.

THE MUSK.

Although the number and nature of quadrupeds at first glance seems very well known; yet, when we come to examine closer, we find some with which we are very partially acquainted, and others that are utterly unknown. There is scarcely a cabinet of the curious but what has the spoils

of animals, or the horns or the hoofs of quadrupeds, which do not come within former descriptions; and there is hardly any one whose trade is to dress or improve furs, but knows several creatures by their skins, which have not hitherto been noticed by any naturalist; and it was only at the latter part of the seventeenth century that a tolerably accurate description of the figure and habits of the musk were given; for it seems to have been unknown to the ancients, but is mentioned in the eighth century by the Arabians. At that period, and long after, the animal was by some considered as a kind of goat; and by others, a species of deer or antelope, and of course was supposed to be a horned animal; but the generic character is without horns, in the lower jaw eight small cutting teeth, and six grinders in each jaw; the upper jaw much longer than the lower, on each side of which is a tusk, near two inches long, hanging down, quite exposed; but some of the tribe are destitute of the latter.

There are now several species of this animal which are known to naturalists. They are hunted for the sake of their well-known perfume, which is contained in an oval bag, about the size of a small hen's egg, hanging from the abdomen, and peculiar to the male only. This receptacle is found constantly filled with a soft, unctuous, brownish substance, of the most powerful and penetrating scent, and which is the perfume in its natural state. When close, and in large quantities, the smell is very powerful and injurious. It has been known to force the blood from the nose, eyes, and ears, of those who have imprudently or accidentally inhaled its vapours; but at a distance the scent is usually considered agreeable. A grain of musk is sufficient to perfume an apartment for a considerable time; but in larger quantities it continues to give out its scent for many years, and seems scarcely wasted in its weight, although it has during that time filled the atmosphere to a great distance with its particles. It is employed in medicine, particularly in nervous and hysteric disorders; and in those cases is found to be one of

the most powerful remedies in use. The quantity produced from each animal is about a quarter of an ounce, and is found at all seasons of the year; but not in those that are young.

Many thousands of these bags are sent over annually to Europe, besides the great consumption which exists in different parts of the East; for Tavernier says, that he bought in one journey 7673 musk bags. To account for which, it is supposed that the musk is frequently mixed and adulterated with the blood of the animal. The musk is principally found in the kingdom of Thibet, in the provinces of Mohang Meng, Tonquin, and Bontan; and also about the lake Baikal, and near the rivers Jenisea and Argun; but that of Thibet is considered the superior kind.

THE THIBET MUSK.

Moschus Moschiferus, Linn. *Le Musc.* Buff.

The size and general appearance of this animal* resembles, in some degree, those of the roebuck. It is about three feet four inches in length, and about two feet eight inches in height, from the top of the shoulders to the bottom of the fore feet; the ears are long and narrow, of a pale yellow in the inside, and deep brown outside. The general colour of the body is a deep iron gray. The female is not so large as the male, has two teats, but is destitute of tusks.

These animals are found in the Alpine mountains of Asia, Tonquin, and Siberia, and about lake Baikal. In their habits and manners they are very like the chamois and other mountain goats, leaping with great celerity, and when pursued taking refuge among the highest and most inaccessible summits. Indeed, their favourite haunts are the tops of mountains covered with pines, where they delight to

* See "Musk," Plate XXIII.

wander in places the most difficult of access. The flesh of the males is much infected with the taste of musk; but it is eaten by the Russians and Tartars.

THE INDIAN MUSK

Is so called from its being a native of the East Indies. It is larger than the Thibet musk: its head is somewhat like that of the horse; the ears oblong and erect, and legs slender, with spurious hoofs; the body is of a tawny colour above, and whitish beneath; and the tail rather long.

THE PYGMÆUS, OR GUINEA MUSK

(*Moschus Pygmæus.* LINN. *Le Chevrotain des Indes.* BUFF.)

Is very small, as its name imports, being not more than nine or ten inches long from the nose to the tail. It is a most elegant little animal; the body is of a bright bay colour; the belly and inside of the thighs white; and the legs are so slender as not to exceed the diameter of a swan's quill; the head, eyes, and ears, are rather large; but the aspect is mild. It obtained the name of Guinea musk, from the opinion of Brisson and others, that it was a native of that country, which, it has been since ascertained, is not the case. They are found in the East Indies, and in several of the islands: in Java and Prince's Island. The natives catch great numbers of them in snares, and carry them in cages to market, where they sell them at about threepence each.

There is also a variety of this kind, with the body of a rusty brown, mixed with black, and the neck and throat marked with perpendicular stripes.

THE MEMINNA MUSK.

Meminna. Buff. *Indian Musk.* Penn.

This species has been sometimes confounded with the Pygmæus musk, but is very dissimilar. It is of a yellowish gray colour; the haunches and sides are spotted and barred with white,* its ears are long and open, and its tail short. This animal is not larger than a hare, but exactly resembles a fallow deer. They can subsist only in a warm climate, being so extremely delicate that it is with difficulty they can be brought alive into Europe, where they soon perish. In addition to their beauty, they are exceedingly gentle and familiar.

THE BRAZILIAN MUSK.

Biche de Guiane. De Marchais.

These animals are about the size of a roebuck; eyes large and black; nostrils wide; the hinder legs longer than the fore legs, and the tail about six inches long; the head and neck tawny; back, sides, and thighs, of a bright rust colour; the lower part of the belly, and inside of the thighs, white. They inhabit Guiana and Brazil, are excessively timid, but remarkably active and swift. Like goats, they can stand with all their four legs placed together on the point of a rock. The Indians hunt them, and their flesh is esteemed very delicate. They are frequently seen swimming in the rivers, and are then easily caught.

THE JAVA MUSK

Is, as its name imports, a native of the island of Java; the body is ferruginous above, beneath white; the tail

* See Plate XXII.

government of France, in 1827, is still living in the Jardin des Plantes, at Paris. It is impossible from a stuffed specimen to form an adequate idea of the grace and beauty of this remarkable animal; nor of the impression produced upon the senses by a creature of such enormous height lifting up its head to gather the tender leaves from branches three times as high as a tall man. Till the living giraffes were brought to England and France there was a general belief that the descriptions of this animal were partly fabulous. It is now established that the account which was given of this animal by Le Vaillant, one of the most amusing of travellers, who saw the animal in its native woods, is perfectly accurate. We copy the following description from his Second Voyage, as translated in 'The Menageries,' Vol. I.:—

"The giraffe ruminates, as every animal does that possesses, at the same time, horns and cloven feet. It grazes also in the same way; but not often, because the country which it inhabits has little pasturage. Its ordinary food is the leaf of a sort of mimosa, called by the natives *kanaap*, and by the colonists, *kameeldoorn*. This tree being only found in the country of the Namaquas, may probably afford a reason why the giraffe is there fixed, and why he is not seen in those regions of Southern Africa where the tree does not grow.

[The Giraffe.]

"Doubtless the most beautiful part of his body is the head. The mouth is small; the eyes are brilliant and full. Between the eyes, and above the nose, is a swelling, very prominent and well defined. This prominence is not a fleshy excrescence, but an enlargement of the bony substance; and it seems to be similar to the two little lumps, or protuberances, with which the top of his head is armed, and which, being about the size of a hen's egg, spring, on each side, at the commencement of the mane. His tongue is rough, and terminates in a point. The two jaws have, on each side, six molar teeth; but the lower jaw has, beyond these, eight incisive teeth, while the upper jaw has none.

"The hoofs, which are cleft, and have no nails, resemble those of the ox. We may remark, at first sight, that those of the fore feet are larger than those of the hind. The leg is very slender, but the knees have a prominence, because the animal kneels when he lies down.

"If I had not myself killed the giraffe, I should have believed, as have many naturalists, that the fore legs are much longer than the hind. This is an error; for the legs have, in general, the proportion of those of other quadrupeds. I say in general, because in this genus there are varieties, as there are in animals of the same species. * * * His defence, as that of the horse and other hoofed animals, consists in kicks; and his hinder limbs are so light, and his blows so rapid, that the eye cannot follow them. They are sufficient for his defence against the lion. He never employs his horns in resisting any attack. * * * * The giraffes, male and female, resemble each other in their exterior, in their youth. Their obtuse horns are then terminated by a knot of long hair: the female preserves this peculiarity some time, but the male loses it at the age of three years. The hide, which is at first of a light red, becomes of a deeper colour as the animal advances in age, and is at length of a yellow brown in the female, and of a brown approaching to black in the male. By this difference of colour the male may be distinguished from the female at a distance. The skin varies in both sexes, as to the distribution and form of the spots. The female is not so high as the male, and the prominence of the front is not so marked. She has four teats. According to the account of the natives, she goes with young about twelve months, and has one at a birth."

for the use of society at large, in a natural and popular style, such as was fitted to be intelligible and interesting to all. In this patriotic enterprise Gellert may be said to have spent his life. Every successive work which he produced was received with delight by Germany; but his celebrated 'Fables' were read with rapture by all classes of the population. One day a peasant appeared at Gellert's door in Leipsic, with a waggon loaded with fire-wood. "Is it not here," asked the man, "that Mr. Gellert lives?" On being told that it was, he desired to see the master of the house; and having been brought to him, "Are not you, sir," he said, "the author of the 'Fables?'" "I am," replied Gellert. "Well then," said the other, "here is a load of wood, which I have brought you, to thank you for the pleasure which your book has given to myself, my wife, and my children." By such a heart as Gellert's this was probably felt to be a more touching tribute to his powers than the plaudits of crowded theatres would have been. Another time he

of his uninstructed pencil. Like many more of the most distinguished cultivators of literature and art, he was prevented by the weakness and delicate health of his early years from mixing in the ruder sports of boys of his own age; and this, of course, gave him more time for solitary study. His father was not able to afford him the advantages of a regular education; but he rapidly acquired a great deal of knowledge by his own unaided efforts. When he was fifteen he was admitted a student in the Royal Academy. Here he was successful in a competition for the inferior honour of the silver medal; but, on the contest for the gold one, Sir Joshua Reynolds, the President, awarded the prize to another. This was, perhaps, upon the whole, not an unfortunate incident for Flaxman, though he severely felt what he thought an injustice. His rival, notwithstanding his good fortune on this occasion, never rose to any distinction; but Flaxman, with the heroism of true genius, resolved to obliterate this defeat of his youth by future triumphs, of the glory of which no such decision should be able to rob him. And this resolution he nobly fulfilled. His first employment was given him by the Messrs. Wedgewood, the productions of whose porcelain potteries he embellished with designs that gave at once a new character to this branch of British manufactures. In 1782 he married; and five years afterwards proceeded to visit Italy, where he remained till 1794, studying the celebrated monuments of the fine arts with which that country abounds, and at the same time exerting his own pencil in the production of works which soon spread his fame over Europe. Having then returned to England, he was in 1797 elected an Associate, and in 1800 a Member, of the Royal Academy. After this he executed many great works in marble; and, as a lecturer, afforded some valuable contributions to the literature of his profession. For many years before his death his name ranked with the highest of the living artists of England. But we must refer the reader for an account of his performances to Mr. Allan Cunningham's interesting life of him, lately published, or to the abstract of that memoir in the second number of the Gallery of Portraits. He died at his house in Buckingham-street, on the 7th of December, 1826, in the seventy-second year of his age.

IMPROVEMENT IN SOCIAL CONDITION.

The history of the United States of North America is, in some respects, one of the most instructive that we can turn to; because we are accurately acquainted with the origin of this social community, and are also enabled to trace its history in all its important facts, from the first establishment of the several colonies up to the present condition of the Union. Of all historical records none can be put in comparison with legislative enactments, as showing the condition of the people at any given period, and the degree of mental culture diffused among them. In the American States, even under their former colonial government, there were few men of any importance in the provinces who did not participate in some of the functions of government; and we may therefore consider the laws enacted at that period as indicative of the opinions held by the most influential classes.

We happen to have before us an old collection of Virginia laws, entitled, 'A complete collection of the Laws of Virginia, at a Grand Assembly held at James City, 23d March, 1662;' a few extracts from which may not be uninteresting.

There appears to be in this volume only one law about education, which prescribes the founding of a college "for the advance of learning, education of youth, supply of the ministry, and promotion of piety." The law states how the money is to be raised; but as to its application nothing more is said, except that a piece

longish; the neck gray, mixed with brown hairs; beneath white, with two gray spots; the nose and ears are almost destitute of hair, and the size of the animal does not exceed that of the rabbit. In the Leverian Museum was a small species of the musk, called "the small spotted musk." In size it scarcely exceeded the pigmy musk; but doubts are entertained of its having attained its full growth, from the fineness and closeness of the hair. The colour was a ferruginous brown, and spotted above with white. Dr. Shaw says, that the animal in question appears to be nearly allied to one represented by Pelia, who says it is a native of Surinam, and describes it as of a ferruginous colour, thickly spotted with white, except on the head, breast, and belly; and that it is in all probability the same.

THE GIRAFFE, OR CAMELOPARD.

Cervus Camelopardalis. LINN. *La Giraffe.* BUFF.

This most extraordinary creature is so very different in its make from any other known quadruped, that it would be difficult to form an adequate idea of it without seeing the animal, or its portrait. The giraffe is the tallest of quadrupeds. It is a ruminating animal, and chews the cud. Its favourite food, in its native country, is the leaf of an acacia, distinguished from the rest of the tribe by the name of *acacia xariffiana,* the twigs of which are succulent; and it browses on the upper branches. It grazes also; but not often, as the country which it inhabits affords but little pasturage.

Linnæus considered the giraffe as a sort of cervus. In this he was not singular, for he had the example of Gesner, and other nomenclators before him; but from the structure of the horns, and the peculiar arrangement of the teeth, it is clear that the giraffe is an animal of another genus, distinct from that of the cervus. Gmelin removed it from

the cervus genus, in the last edition of the *Systema Naturæ*, to that of *camelopardalis*, where it stands at present a solitary example of this curious genus. The giraffe inhabits the vast forests of Ethiopia, and the interior parts of Africa, which have been undisturbed by the residence of man, almost as high as Senegal, where it is seen sometimes in herds of seven or eight; but is not found in Guinea, or any of the western parts.

The existence of an animal so strongly distinguished in its organic structure and size from all other known quadrupeds as the giraffe, appears to have been very generally doubted by the moderns, until about the middle of the last century. Even Pennant says, "I saw the skin of a young one at Leyden, well stuffed and preserved, otherwise I might possibly have entertained doubts in respect to the existence of so extraordinary a quadruped." Buffon (*Hist. Nat.* tom. xiii.) has endeavoured to describe, but has not attempted to delineate, the giraffe; and has, with other zoologists, fallen into the error of stating, that the fore legs of the animal are twice as long as the hinder ones. Till the year 1827, when a giraffe arrived in England, and another in France,* the animal had not been seen in Europe for upwards of three

* These two animals being considered as acceptable to royalty, were sent by Mohammed Ali, the Pasha of Egypt, as presents to their majesties the Kings of Great Britain and France. Shortly afterwards two others were also sent to Europe — one to Venice, and one to Constantinople; both these, as well as the one in England, are since dead: the latter was about four years old when it died, and had grown about eighteen inches during the two years it lived in England. On its arrival it measured from the top of the head to the bottom of the hoof, ten feet eight inches; while the height of that which is now living in the Jardin du Roi is about fifteen feet. Both these animals were procured from the Arabs by the governor of Sennaar, a large town of Nubia, and forwarded to the Pasha of Egypt, who determined upon sending them as above named; but as there was some difference in the size, the consuls of each nation drew lots for them. The shortest and weakest fell to the lot of England; and from this creature it was hardly possible to form a correct opinion of its natural capacities and habits. Its

centuries, when the Soldan of Egypt sent one to Lorenzo de' Medici; but it was known to the Romans in early times. According to Pliny, it was exhibited by Cæsar the dictator in the Circæan games. It was afterwards more frequently introduced: Pompey exhibited at one time no fewer than ten upon the theatre. It was the barbarous pleasure of the people at that period to see the most terrible and the most extraordinary animals produced in combat against each other. The lion, the lynx, the tiger, the elephant, the hippopotamus, were all let loose promiscuously, and were seen to inflict indiscriminate destruction. Aurelian exhibited the giraffe, and other remarkable animals, in his triumph on the conquest of Palmyra; and Heliodorus speaks of it as being brought, with various presents, by the Ethiopian ambassadors to Rome. It is also represented, among other rare animals, on the Prænestine pavement, made by the direction of Sylla, and is exhibited in its natural attitudes, both of grazing and browsing: yet it was not till within the last forty years that we obtained any precise notions of the form and habits of the giraffe; and these we principally owe to Le Vaillant. "If height alone," he observes, "constituted precedency among quadrupeds, the giraffe would undoubt-

limbs were deformed by the treatment it experienced from the Arabs in its overland journey from Sennaar to Cairo, it being occasionally confined on the back of a camel; and when huddled together for this purpose, the cords that were used, and the manner of tying them, left evident marks of the torture this poor animal must have endured. On her first arrival in England she was exceedingly playful, yet gentle, and perfectly harmless. Her usual food was ash-leaves, oats, barley, and beans (which were split); and her beverage was milk, of which she drank about eight or ten quarts per day: but she soon became weak and inactive. Indeed, this weakness increased so much, that it became necessary to construct a pulley, which was suspended from the ceiling of her hovel; to this was attached a cord or band, which was fastened round her body for the purpose of raising her on her legs without any exertion on her part. She appeared to know her keeper; and her attention was readily attracted by the objects with which she was surrounded, till she died.

edly claim the first rank, measuring, when full grown, near seventeen feet, from the top of the head to the fore feet." In this passage, however, Vaillant speaks only of the male, the female being smaller. Sonnini fully confirms the testimony of Vaillant in respect to the vast stature of the giraffe, observing, that they sometimes attain to the height of seventeen or eighteen feet. Vosmœr goes further, and declares that some very respectable inhabitants of the Cape of Good Hope assured him, that they had seen and killed giraffes which, including the horns, were twenty-two Rhinland feet in height, or nearly twenty-three feet of our measure. Impartially considering, however, all that has been said on this subject by writers in general, we may allow sixteen or seventeen feet to be the common height of this animal when full grown.

The male and the female giraffe resemble each other when young; but as the animal advances in age, the spots on the male become dark brown, while those on the female continue of a ferruginous cast: the latter is, however, said to acquire the dusky shades of the male when very old. There is a tubercle on the forehead, which occurs in both sexes; but it is smaller on that of the female than on that of the male; and the female has also four teats as in the cow. According to the account of the natives, she goes with young about twelve months, and has one at a birth. The teeth in the giraffe, thirty-two in number, are situated thus: six grinders on each side, in both the upper and under jaw; no front teeth in the upper jaw, but eight in the lower, broad and thin, and the outer ones deeply bilobate. The horns, both from their size and form (which exist in both sexes), seem intended merely for ornament, as they are never used in resisting any attack, and are not deciduous. They are about six inches in length, and consist of a porous bony substance, forming, as it were, a part of the skull, and cannot be shed like the horns of the deer. They are of a texture altogether different, not only from those of the animals of

that kind, but from all other known kinds of horned quadrupeds. They are covered with a soft skin, which is a continuation of the skin of the head, and furnished with soft bristly hair. They terminate abruptly in a flattish or slightly convex tip, but little wider than the other parts of the horn, and are edged with stiff bristles all round the outline. The head is certainly the most beautiful part of the animal, it being like that of the deer; the eyes are full and brilliant, and so placed that the animal can see both behind and before without turning its head; the mouth is small; the tongue is sometimes smooth, and slightly adhesive; at others very rough, owing to the papillæ on that organ, which it can raise at pleasure: it has spots upon it, and can be so tapered by its peculiar construction as to enter the ring of a small key. The animal has the power of elongating its tongue, which it uses for the purpose of reaching and drawing towards its mouth those succulent branches of trees which it could not otherwise obtain. The upper lip is longer than the lower, which assists the tongue in drawing in boughs. The motions of the head and neck are very graceful, possessing the flexibility and useful properties of the neck of the swan and peacock; when erect and viewed in front, it is elegantly proportioned, slender, and stag-like. Between the horns commences a mane of short and almost straight hair, which is continued over the neck, and on to the withers. Its shoulders are large, protruded, and heavy; the upper limb of both the fore and hinder legs is rather thick, while the lower is as fine as that of the deer, and is, as well as the external outline of the fetlock and hoof, in form not unworthy of a blood horse. There is an excrescence or callosity on the chest, and the knees have a swollen appearance, owing probably to the mode in which it reposes; the tail descends below the houghs, and is rather slender, spotted like the body of the animal, and terminated by a tuft of long blackish hair; the hoofs are very symmetrical, and divided like those of the ox, but are destitute of the small

hoofs at the fetlock joints; the shoulders are of an extraordinary length, which makes the fore legs appear much longer than the hinder ones, though in fact there is but little difference. In consequence of this conformation, the creature is about a foot and a half higher at the shoulders than at the rump, so that the back appears sloped, like the roof of a house; and the animal when standing has somewhat the appearance of a dog sitting on his haunches.

The height of a full-grown giraffe, as before observed, is about seventeen feet from the ground to the top of the head, while at the rump it is only eight and a half; the neck alone is nearly seven feet long, and the length from the extremity of the tail to the end of the nose is twenty-two feet. The general colour of the animal from which we have given our representation is of a yellowish white; its head, neck, shoulders, body, and thighs, are covered with large spots of reddish brown, of unequal size and figure; the belly and legs are white, and there is also a remarkable white mark on the upper part of the fore leg, near to the belly.

In walking, the giraffe moves the fore and hind foot of the same side together, like an ambling horse. When it leaps or gallops, it proceeds by a motion somewhat analogous to that of a kangaroo: to effect which, it is obliged to bring its hinder quarters very near to the ground, and then it raises both the fore legs at once, and afterwards the hinder ones, like a horse whose fore legs are tied.

This apparently awkward gait has given rise to some scepticism regarding the great speed which has been attributed to this animal by M. Vaillant, whose authority we shall quote. Speaking of his first sight and chase of the giraffe in Africa, he says: "One of the Namaquas who were my guides, came in great haste to give me information which he thought would be agreeable to me. He had run to say, that he had just found in the neighbourhood a giraffe under a mimosa, the leaves of which he was browsing upon. In an instant, full of joy, I leaped upon my horse — I made

Benfrey" (one of his men) " mount another, and, followed by my dogs, I flew towards the mimosa. The giraffe was no longer there. We saw her cross the plains towards the west, and we hastened to overtake her. She was proceeding at a smart trot, but did not appear to be at all hurried. We galloped after her, but she insensibly gained upon us—so that, after having pursued her for three hours, we were obliged to stop because our horses were quite out of breath, and we then entirely lost sight of her. The pursuit had led us far away from each other and from the camp; and the giraffe having made many turns and doubles, I was unable to direct my course towards home. It was noon; I already began to feel hunger and thirst, and I found myself alone in a sterile and arid spot, exposed to a burning sun, without the least shelter from the heat, and destitute of food." He was, however, fortunate enough to shoot some birds, which he cooked, and to rejoin his companions in the evening. " The next morning my whole caravan joined me again. I saw five other giraffes, to which I gave chase; but they employed so many stratagems to escape, that, after having pursued them the whole day, we entirely lost them as the night advanced. I was in despair at this ill success . . . . . The next day was the happiest of my life. By sunrise I was in pursuit of game, hoping to obtain some provisions for my men. After several hours' fatigue, we descried at the turn of a hill seven giraffes, which my pack instantly pursued. Six of them went off together; but the seventh, cut off by my dogs, took another way. Benfrey was walking by the side of his horse, but, in the twinkling of an eye, he was in the saddle, and pursued the six. For myself I followed the single one at full speed; but, in spite of the efforts of my horse, she got so much a-head of me, that, in turning a little hill, I lost sight of her altogether. I had scarcely got round the hill when I perceived her surrounded by the dogs, and endeavouring to disperse them by violent kicks. In a

moment I was on my feet, and a shot from my carbine brought her to the earth."

From this testimony of M. Vaillant, we are led to conclude that the giraffe is a creature of great speed; while others, who have also seen the animal alive, deny the swiftness he has ascribed to it. Again, upon another point, M. Acerbi, who saw both the giraffes which were brought to Europe in 1827, at Alexandria, as well as two others, differs from most writers as to the difficulty which that animal would find in reaching the ground when in the act of grazing. In a letter published in the *Athenæum*, Feb. 18, 1829, he says, "There are few naturalists who have not contributed to perpetuate the vulgar error, that, in eating or drinking from the ground, the giraffe is compelled to stretch his fore legs amazingly forwards. Some even assert, that 'he is obliged to kneel down.' Of the four animals which fell under my observation, three took their food from the ground with comparative facility; and one of them was scarcely under the necessity of moving its fore legs at all. . . . . I should infer, that every giraffe, in a natural state, is enabled to eat or drink from the ground without inconvenience; and that, where any difficulty exists in this respect, it is the effect of habit acquired in the progress of domestication." But these seeming contradictions may perhaps be reconciled, when we consider the difference which exists between individuals of the same species, to say nothing of varieties; and that the same animal may be seen under *different* circumstances by the most accurate observers. In one point all the observers of the European giraffes agree—that they never make any noise whatever; and it is also considered that the animal would be useless to man in a state of domestication, although its character is that of a gentle and harmless creature. Antonius Constantius, a writer of the fifteenth century, gives an account of a giraffe he saw at Faro, which, he says, was so gentle that it would eat bread,

hay, or fruit, out of the hand of a child; and that when led through the streets, it would take whatever food of this kind was offered to it by the spectators. Vaillant also confirms this character of the giraffe.

Mr. Gordon relates, that a giraffe, which he had wounded, suffered him to approach it as it lay on the ground, without offering to strike with its horns, or shew any inclination to revenge itself: he even stroked it over its eyes several times, when it only closed them, without any signs of resentment. Its throat was afterwards cut for the sake of its skin; and when in the pangs of death, it struck the ground with its feet with a force much exceeding that of any other quadruped. Indeed, the hinder hoofs (which are rather smaller than the fore ones) are the only defensive weapons of the giraffe; but the force and velocity with which it strikes or kicks is quite tremendous, according to the concurrent testimony of both ancient and modern writers; and there appears no reason to doubt that its kicking protects it against the most powerful beasts of the forest. It never employs its horns in resisting any attack. The noble animal now in the Jardin du Roi, from which our drawing of the giraffe was made, fully confirms in its nature that peaceable and gentle disposition which authors have attributed to this genus; and this we record from the opportunity afforded by our own observation: it seemed to place the most unbounded confidence in every one who approached it, and never exhibited any signs of fear. It appeared to be particularly partial to ladies: this might arise perhaps from the circumstance of their frequently being provided with grapes, cakes, &c., which they gave to it, and which it always received with the greatest gentleness and apparent pleasure. It was much attached to its keeper, an African, who slept in the same apartment with it, and who, with a dog, usually accompanied it when it was turned out into the enclosure: this regularly occurred at twelve o'clock, when the mornings were sufficiently fine. It had, besides, a morning walk (as repre-

sented in our Plate) in the Jardin du Roi, previously to the gardens being opened to the public. On the morning on which our sketch was made, it was so delighted to get out that it began to caper, and galloped away, dragging its poor keeper after it in a ludicrous plight. It could rise in an instant from a recumbent posture; and the effect of seeing the head so much above you in so short a time was very extraordinary. Its food was hay, chopped beans with the husks taken off, and ground grain. These were put into an elevated trough for the convenience of the animal; so high that the man was obliged to have a ladder to ascend to it.

THE ELK

(*Cervus Alces.* Linn. *L'Elan.* Buff.)

Is the largest and most formidable of all the deer kind, and is a native of both the old and the new continent. In Europe it is known by the name of the elk; but in America this species is designated the moose-deer. It inhabits the forests of Russia and Germany, likewise Norway, Sweden, Poland, and Tartary, as far as the north of China. It is common in Canada, and all the northern parts of America. In shape the elk is much less elegant than the rest of the deer species, having a very short and thick neck, a large head; horns, which are found only on the males, dilating almost immediately from the base into a palmated form, solid, and annually deciduous; the ears large, and somewhat slouching; a thick, broad, heavy, upper lip, hanging very much over the lower; very high shoulders; the hinder legs much shorter than the fore legs, and the hoofs deeply cloven; the teeth are the same in number and situation as in the other members of the deer species, namely, eight cutting teeth in the lower jaw, none in the upper. The colour of the animal is a dark grayish brown, much paler and inclining to white on the legs and beneath the tail.

Pl. 25.

R. Sands. del. et fc.

ELK.

R. Sands. del. et fc.

AMERICAN ELK.

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The hair is of a strong, coarse, and elastic nature, and is much longer on the top of the shoulders and ridge of the neck than on the other parts, forming a kind of stiffish mane. The hair is also of considerable length beneath the neck; and in some specimens of the animal, a sort of excrescence, covered with long hair, is pendent from beneath the throat. The eyes are large, the hoofs broad, and the tail very short.

The European elk grows to the height of seven or eight feet, and the length from the nose to the insertion of the tail measures ten feet. The head is two feet long. The pace of this animal is a high shambling trot; but they proceed along with great swiftness. Formerly elks were employed in Sweden to draw sledges; but as they were frequently made accessary to the escape of such as had been guilty of murders or other great crimes, the use of them was prohibited under heavy penalties. In their ordinary walk they raise their fore feet very high, and will step over a gate a yard high with perfect ease, their hoofs clattering much during their motion, as is the case also with the rein-deer.

The elk resides principally in the midst of forests, for the convenience of browsing on the branches of trees, it being unable to graze with facility, on account of the shortness of its neck, and the disproportionate length of its fore legs. When passing through woods, they raise their heads to an horizontal position to prevent their horns from being entangled among the branches. They feed chiefly in the night, and ruminate like the ox. The rutting season is in autumn. The female brings forth two at a birth, in the month of April. During the summer they keep in families. In deep snows they collect in numbers in the pine forests, for protection from the inclemency of the weather under the shelter of those evergreens.

Though naturally of an inoffensive and peaceable disposition, the elk displays a considerable share of courage when

suddenly attacked, or in the rutting season, when they become furious, and at that time swim from isle to isle in pursuit of the females. They will defend themselves with great vigour, not only with their horns, but also by striking violently with the fore feet, in which they are so dexterous as to kill a dog, or even a wolf, at a single blow. The flesh of the elk is very nourishing and light; but the nose is reckoned the greatest delicacy in all Canada. The tongues are excellent, and are frequently brought to this country from Russia. The skin makes excellent buff leather, being soft, strong, and light; the hair on the neck, withers, and hams, of a full-grown elk is, from its elasticity, of considerable use in making mattresses and saddles.

The chase of the moose-deer forms an important occupation among the natives of North America, and is performed by them in various methods. The first is the most simple, and is conducted in the following manner:—before the lakes and rivers are frozen, multitudes of the savages assemble in their canoes, and form with them a vast crescent, each horn touching the shore. Another party perform their share of the chase among the woods, surrounding an extensive tract, letting loose their dogs, and pressing towards the water with loud cries. Alarmed by the noise, the animals fly before the hunters, and plunge into the lake, where they are killed by the other savages in their boats, who are prepared to receive them with clubs and lances. Another method pursued at times by the hunters is more artful: they enclose a large space of ground with stakes, hedged with branches of trees, and forming two solid sides of a triangle. The bottom space opens into a second space, completely triangular. At the opening are hung numbers of snares, made of slips of raw hides. The Indians assemble, as before, in great troops, and, with all kinds of noises, drive into the first enclosure not only the mooses, but the other kinds of deer which abound in that country: some, forcing their way into the farthest triangle, are caught in the snares by the neck or horns; and

those that escape the snares and pass the opening meet their fate from the arrows directed at them from all quarters. They are, besides, often killed with the gun. When first dislodged, the animal falls down or squats, as if disabled for a moment or two, at which instant the hunter fires; if he misses, the moose sets off at a swift trot, making at the same time a prodigious clattering with the hoofs; and will oftentimes run twenty or thirty miles before he comes to bay, or takes to the water.

The usual time for this diversion is the winter. The hunters avoid entering on the chase till the sun is strong enough to melt the frozen crust with which the snow is covered, otherwise the animal can run over the firm surface: they wait, therefore, till it becomes soft enough to impede the flight of the moose, which sinks up to the shoulders, and flounders on with difficulty; while the sportsman pursues at his ease on his board-rackets or snow-shoes, and makes a ready prey of the distressed animal.

An ancient superstition has prevailed that the elk is naturally subject to epilepsies, and that it cures itself by scratching its ear with its hoof until it draws blood: on this account a piece of the hoof was anciently set in a ring, and worn as a preservative against the above-named complaint; and sometimes the hoof was applied to the ear, to the pulse, or suspended from the neck, in such a manner as to touch the breast. It was also used in the colic, vertigo, pleurisy, and purple fever, by pulverising it, and drinking it in water.

Fossilised horns, of enormous size, have been dug up in Ireland, and in some parts of Britain, and which have been considered as belonging to the elk or moose. In point of size, they very far exceed the horns of the largest moose; and in their appearance differ so materially, that they could not possibly have belonged to that animal. They have long beams to support the palmated part, instead of short ones, as in the moose. They are also much thicker, and are usually

twelve, and sometimes fifteen feet, from tip to tip. Such stupendous horns cannot be referred to any of the species of the cervine race with which we are now acquainted; and they must of course have belonged to some species totally extinct, or at present unknown.

THE AMERICAN ELK.

This animal differs greatly from the preceding, being much more elegant in its general form; nor are its horns palmated like those of the moose, but they are of considerable size, and, when full-grown, measure above six feet from tip to tip. The antlers are round and pointed, the lowermost antler forming a curve downward over each eye. The drawing of the figure annexed was taken shortly after the animal had shed its horns, and when the succeeding ones had attained sufficient growth to shew where the lowermost antlers commenced. At the age of five years the length of this animal was nine feet from the insertion of the tail to the end of the nose; height at the shoulders, four feet six inches; length of the fore legs, two feet five inches; that of the neck, two feet six; length of the head, one foot six inches; the ears nine, and the tail about three inches. Its hair long, and of a dark dun colour on the back and sides, and dark brown on the head and legs. The eyes were full and lively, and below each of them was a deep kind of lachrymal opening, about two inches in length. This animal possessed the appearance of great strength, both in the body and in the limbs, yet it was very lively and active. Its hoofs were short, like those of the calf; and when the animal was in motion they did not make a rattling noise, like those of the moose and rein-deer. It had no mane; but the hair upon the under part of the neck was longer than that upon any other part of the body. It is, as its name imports, an inhabitant of the interior parts of America.

J. Le Keux. del. et fc.

REIN DEER.

R. Sands Junr. lith.

STAG OR RED DEER.

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THE REIN-DEER.

Cervus Tarandus. Linn. *Le Renne.* Buff.

Of all animals of the deer kind, the rein-deer is one of the most extraordinary and the most useful. It is a native of the icy regions of the north; and, though many attempts have been made to accustom it to a more southern climate, it soon feels the influence of the change, and in a few months declines and dies; for nature seems to have adapted it exclusively to the necessities of that portion of the human race who live near the Pole. As these would find it impossible to subsist among their barren snowy mountains without its aid, so this animal can live only there, where its assistance is most absolutely necessary. From it alone the natives of Lapland and Greenland supply most of their wants: it answers both the purposes of a horse, to convey them and their scanty furniture from one mountain to another, and of a cow, in giving milk; and it also supplies the place of the sheep in furnishing them with a warm, though a homely clothing, as they dress the skin with the hair on, which is soft and pliant. The hides are also used as blankets, and for the inner lining of their tents. The milk of the female rein-deer, of which it supplies about a pint daily, affords them cheese, the flesh food, and the tendons bow-strings, and, when split, they form the threads with which they sew their jackets; the horns also are useful for making glue, and the bones are converted into spoons.

The rein-deer inhabits farther north than any hoofed quadruped in America. It is found in Spitzbergen and Greenland, but not further south than Canada. In Europe, it abounds in Samoïdea, Lapland, and Norway; in Asia, it inhabits the north coast, as far as Kamtschatka, and the inland parts as low as Siberia; but it is domesticated mostly by the Laplanders, Samoïdes, and Kamtschatkans. Rein-deer are found in the neighbourhood of Hudson's Bay in amazing numbers.

Columns of eight or ten thousand are seen annually passing from north to south, in the months of March and April, driven out of the woods by the musquitos. In autumn the deer migrate, with their fawns, northward. The Indians are very attentive to their motions, as these animals constitute the chief part of their dress as well as food. They often kill numbers for the sake of their tongues only: at other times they separate the flesh from the bones, and preserve it by drying it in smoke. The skins are also an article of extensive commerce with the English. The Esquimaux and Greenlanders eat the flesh either raw, dressed, or dried and smoked with the snow lichen; and the wearied hunters will sometimes drink the raw blood.

There are several varieties of the rein-deer. That which is called the Greenland buck has the horns round, and covered with a hairy skin. Another variety, the caribou of Hudson's Bay, has the horns straight, with one branch at the base turned backwards.

The rein-deer is smaller than the stag; it is also lower, and the body of a squarer form, and the legs shorter in proportion than those of that animal. The general colour is a brownish ash above, and white beneath; but as it advances in age it often becomes of a grayish white, and sometimes almost entirely black. The hair on the body is very thick; and that on the under part of the neck is of much greater length than on any other part of the animal. When shed, its coat does not drop from the root as in other quadrupeds, but seems broken short near the bottom; so that the lower part of the hair is seen growing while the upper falls away. Both sexes are furnished with horns, which, as in the rest of the deer kind, sprout from the points, and which also at first are furnished with a downy crust, of most exquisite sensibility, which supports the blood-vessels. The horns of the female are much smaller than those of the male. Some of the latter are remarkable for their great length, and are furnished at the base with a pair of brow antlers, bending forward over

the eyes, with expanded palmated tips. Towards the middle of the horn rises another branch, turning a little forward and upward; while the remainder inclines rather backwards, and sometimes extends to a great length, being more or less ramous at the extremities. In the young and middle-aged rein-deer the horns are remarkably slender. The height of the domesticated animal is about three feet; that of the wild ones four. The female begins to breed at the age of two years — is in season the latter end of September — goes with young eight months, and generally brings forth two at a time.

The male casts his horns annually at the end of November, the female not till she fawns, about the middle of May. If, however, she be barren, which is not unfrequently the case, she does not shed them till winter. The rein-deer lives about sixteen years. Its usual travelling pace is a trot; for though the animal may proceed at a gallop for some miles on first starting, yet it will gradually relax into that pace, which it can continue for a whole day. The hoofs are long, large, and black, as are also the false or secondary hoofs behind; they are also cloven and movable, so that the animal spreads them abroad as it goes over the snow, to prevent its sinking. One thing seems peculiar to this animal and the elk, namely, that as they move along, their hoofs are heard to make a crackling noise, which arises from their manner of treading; for as their cloven hoof spreads upon the ground when they tread, so the divisions close again rapidly when they raise their feet, and, striking against each other, they thus produce the noise above noticed.

Lapland is divided into two districts, the mountainous and the woody. The mountainous part of the country is at best barren and bleak, excessively cold, and uninhabitable during the winter; still, however, it is the most desirable part of this frightful region, and is most thickly peopled during summer.

The woody part of the country is much more desolate

and hideous. There the whole face of nature presents a frightful scene of trees without fruit and plains without verdure. As far as the eye can reach scarcely any thing is to be seen, even in the midst of summer, but barren fields, covered only with a moss, almost as white as snow—no grass, no flowery landscapes—only here and there a pine-tree, which may have escaped the frequent conflagrations by which the natives burn down their forests. As the whole surface of the country is clothed in white, so, on the contrary, the forests seem to the last degree dark and gloomy. While one kind of moss makes the fields look as if they were covered with snow, another kind blackens over all the trees, and even hides their verdure. This moss, however, which deforms the country, serves for its only support, as it is upon this alone the rein-deer can subsist. The inhabitants, who, during the summer, live among the mountains, drive down their herds in winter, and people the plains and woods below. Such of the Laplanders as inhabit the woods and the plains all the year round, live remote from each other, and having been used to solitude, are melancholy, ignorant, and helpless. They are much poorer also than the mountaineers; for, while one of these is found to possess a thousand rein-deer at a time, scarcely any of those are ever known to rear an eighth part of that number.

If a Laplander possess a herd of five hundred, he can live in tolerable comfort. In summer he can make a sufficient quantity of cheese to supply him for a twelvemonth, and can afford to kill during the winter deer enough to furnish himself and his family with venison. With two hundred deer a man may manage to support his family, if it be small; but if he have but one hundred, his subsistence is precarious, and he cannot rely entirely upon them for maintenance. Should he have but fifty, he is not then independent; and, in order to gain a subsistence, he usually joins his small herd with that of some more wealthy Laplander, being considered more as a menial, pursuing the laborious occupation of

attending the herd, bringing them home to be milked, and other useful offices. Thus the rein-deer constitutes the riches of this people; and the cold mountainous parts of the country agree best with its constitution. It is for this reason, therefore, that the mountains of Lapland are preferred to the woods; and that many claim an exclusive right to the tops of hills, covered with almost eternal snow.

As soon as the summer begins to appear, the Laplander, who had fed his rein-deer upon the lower grounds during the winter, then drives them up to the mountains, and leaves the woody country and low pasture, which at that season are truly deplorable. The gnats, bred by the sun's heat in the marshy bottoms and weedy lakes, with which the country abounds more than any other part of the world, are all upon the wing, and fill the whole air like clouds of dust in a dry windy day. The inhabitants at that time are even obliged to daub their faces with tar, to shield their skins from the attacks of these insects, every place being then so infested, that the poor natives can scarcely open their mouths without fear of suffocation; since, from their numbers and minuteness, the insects enter into the nostrils and the eyes, and do not leave the sufferer a moment at his ease. But they are chiefly enemies to the rein-deer; the horns of that animal being then in their tender state, and possessed of extreme sensibility, a famished crowd of insects instantly settle upon them, and drive the poor animal almost to distraction. In this extremity there are but two remedies to which the quadruped, as well as its master, are obliged to have recourse: the one is, for both to take shelter near the cottage, where a large fire of tree moss is prepared, which, filling the whole place with smoke, keeps off the gnats—and thus by one inconvenience expels a greater; the other is to ascend to the highest summit of the mountains, where the air is too thin, and the weather too cold, for the gnats to come. There the rein-deer are frequently seen to continue the whole day, although without food, rather than venture down into

the lower parts, where they can have no defence against their unceasing persecutors. Besides the gnat, there is also a gadfly, that, during the summer season, is no less formidable to them. This insect is bred under their skins, where the egg has been deposited the preceding summer; and it is no sooner produced as a fly than it again endeavours to deposit its eggs in some place similar to that from whence it came. Whenever it appears flying over them, it puts the whole herd, however numerous, into motion. They know their enemy, and do all they can, by tossing their horns and running among each other, to terrify or avoid it. All their endeavours, however, are too generally without effect; the gadfly is seen to deposit its eggs under the skin, wound it in several places, and often bring on an incurable disorder. In the morning, therefore, as soon as the Lapland herdsman drives his deer to pasture, his greatest care is to keep them from scaling the summits of the mountains, where there is no food, but where they go merely to be at ease from the gnats and gadflies that are ever annoying them. At this time there is a strong contest between the dogs and the deer; the one endeavouring to climb up the sides of the hills, and to gain those summits that are covered with eternal snows; the other forcing them down by barking and threatening, and in a manner compelling them into the places where the food is in the greatest plenty. There the men and dogs confine them, guarding them with the utmost precaution the whole day, and driving them home at the proper hours for milking. It is a pleasing spectacle to see, in the evening, the herds assembled round the gamme (encampment) for that purpose. On all the hills around every thing appears full of life and motion: the rein-deer bound and run, stand still and bound again, in an indescribable variety of movements; the busy dogs are every where barking, and attentively bringing the herds, which often consist of four or five hundred, nearer and nearer. When at last they reach the gamme they frisk about in confidence, play with their antlers against each

other, or stand still in repose; while others, in groups, surround the patches of moss on which they browse. When the maidens appear with their milk vessels, the brother or servant throws a halter round the horns of the animal which they point out to him, and draws it towards them; the animal often struggles, and reluctantly follows the halter; the maiden laughs at, and enjoys the labour it occasions, and sometimes wantonly allows it to get loose that it may be again caught for her; while the father and mother are heard scolding them for their frolicsome conduct, which has often the effect of producing confusion in the whole herd.

Upon the return of the winter, when the gnats and flies are no longer to be feared, the Laplander descends into the lower grounds; and as there are but few to dispute the possession of that desolate country, he has an extensive range to feed them in. Their chief, and almost their only food at that time, is the white moss already mentioned; which, from its being fed upon by this animal, obtains the name of *lichen rangiferinus.*

With instincts adapted to the soil, the deer pursue their food,* though covered in the deepest snow. They turn it up with their noses like swine; and even though its surface be a little frozen and stiff, yet the hide of the animal is so hardened in that part that they easily overcome the difficulty. It is said that they also use their horns for this purpose. It sometimes, however, happens, though but rarely, that the winter commences with rain, and a frost ensuing, covers the whole country with a glazed crust of ice. Then, indeed, both the rein-deer and Laplander are undone, if the latter have no provisions laid up in case of accident; and the only resource is to cut down the large pine-trees that are covered with moss, which furnish but a scanty supply; so that the

* It is a singular and well-authenticated fact, that the rein-deer will eat with avidity the lemming or mountain rat; thus presenting one of the few instances of a ruminating animal being in a slight degree carnivorous.

greatest part of the herd is then seen to perish without a possibility of assistance. It sometimes also happens that even this supply is wanting; for the Laplander often burns down his woods in order to improve and fertilise the soil which produces the moss upon which he feeds his cattle.

The rein-deer of this country are of two kinds — the wild and the tame. The former, as before observed, are larger and stronger, but more mischievous than the others. This breed, however, is preferred to that of the tame; and the female of the latter is often sent into the woods, from whence she returns home impregnated by one of the wild kind. The offspring of these are fitter for drawing the sledge, to which the Laplander accustoms them betimes, and yokes them to it by a strap, which goes round the neck, and comes down between their legs. The sledge is extremely light, and shod at the bottom with the skin of a young deer, the hair turned to slide on the frozen snow. The person who sits on this guides the animal with a cord, fastened round the horns, and encourages it to proceed with his voice, and drives it with a goad. Some of the wild breed, though by far the strongest, are yet found refractory, and often turn upon their drivers, who have then no other resource but to cover themselves with their sledge, and let the animal vent its fury upon that. But it is otherwise with those that are tame; no creature can be more active, patient, and willing. When harnessed to a sledge, they will draw about 250 pounds weight. They trot about ten miles an hour; and they will travel one hundred and fifty miles in nineteen hours. In such a case, however, the poor obedient creature fatigues itself to death, and would die in a day or two after; but on these occasions its sufferings are usually terminated by the Laplanders killing it immediately. In general they can go about thirty miles without halting, and without any great or dangerous efforts. This, which is the sole manner of travelling in that country, can be performed only in winter when the snow is glazed over with ice; and although it be a very speedy method of

conveyance, yet it is inconvenient, dangerous, and troublesome.

The rein-deer is an inquisitive animal, and at the same time so very silly, that if he sees any suspicious object which is not actually chasing him, he will, after many caperings, and forming repeated circles, gradually approach nearer and nearer to it; and from this peculiar trait they become an easy prey to the wary hunter. When two men hunt in company they sometimes purposely expose themselves to the animal's view; and when they perceive that they have attracted his attention, they walk slowly away from him, one before the other. The deer almost instinctively follow; and when the foremost hunter arrives near a large stone, or any other elevated object, he drops down behind it, and prepares his bow, while his companion continues walking steadily forward. The unsuspecting animal continues to follow him, and thus passes within a few yards of its concealed enemy, who takes a deliberate aim and kills it.

Although the rein-deer is a very hardy and vigorous animal, yet it is not without its diseases. As already mentioned, its hide is often pierced by the gadfly in a hundred places, like a sieve; and not a few die in their third year from this very cause. They are also troubled with a vertigo, and often turn round till they die. Besides this, they are subject to ulcers near the hoof, which incapacitates them for travelling or keeping with the herd. But the most fatal disorder of all is that which the natives call *suddataker*, which attacks this animal at all seasons of the year. The instant it is seized with this disease it begins to breathe with great difficulty, its eyes begin to stare, and its nostrils to expand. It acquires an unusual degree of ferocity, and attacks all it meets indiscriminately. Still, however, it continues to feed as if in health, but is not seen to chew the cud; and it lies down more frequently than before. In this manner it continues, every day consuming and growing more emaciated,

till at last it dies; and not one of those that are thus attacked is ever known to recover. This disease is contagious; and the moment the Laplander perceives one to be infected, he hastens to kill it immediately, or it would be the means of the total destruction of his herd. The Laplander's only attempt to cure all these disorders is by anointing the animal's back with tar; if this does not succeed, he considers the disease as beyond the power of art, and, with his natural phlegm, submits to the severities of fortune.

Besides the natural maladies of this animal, there are some external and fatal enemies which it has to fear. The bears now and then make depredations upon the herd; but, of all their persecutors, the creature called the glutton is the most dangerous and the most successful. The war between these two animals is carried on not less in Lapland than in North America, where the rein-deer is called the caribou, and the glutton the carajou.

This animal, which is not above the size of a badger, waits many days together for its prey, hid in the branches of some spreading tree, and when the wild rein-deer passes underneath, it instantly drops down upon it, fixing its teeth and claws into the neck, just behind the horns. It is in vain that the wounded animal then flies for protection, that it rustles among the branches of the forest—the glutton still holds its former position; and although it often loses a part of its skin and flesh, which are rubbed off against the trees, yet it still keeps fast until its prey drops with fatigue and loss of blood. The deer has but one method only of escape, namely, jumping into the water, which element its enemy cannot endure; it therefore then quits its hold, and endeavours to provide for its own security.

THE STAG, OR RED DEER.

Cervus Elaphus. LINN. *Le Cerf.* BUFF.

If we compare the stag and the bull, as to shape and form, few animals can be more unlike; and yet, if we examine their *internal* structure, we shall find a striking similitude between them. Indeed, their differences in this respect are not very striking, except to the comparative anatomist. All the deer family want the gall-bladder, their kidneys are formed differently, and their spleen is proportionally larger. Their tail is also shorter; and their horns, which are solid, are renewed every year. Such are the principal differences between two animals — one of which is among the swiftest, and the other the heaviest of the brute creation.

The stag or red deer is common in Europe, Barbary, the north of Asia, and North America: it abounds in the southern parts of Siberia, where it grows to an immense size; but is now extirpated in Russia. It lives in herds, and there is generally one male which is supreme in each herd. The colour of the stag is generally a reddish brown, with some black and white about the face, and a black line down the hinder part of the neck between the shoulders, and the belly white. Sometimes their colour is a pale yellow brown, sometimes a blackish brown; and, lastly, instances occasionally occur of stags being found entirely white. The horns are branched and slender, and have sharp brown antlers. The *hippelaphus* of the ancients was only a large race of stags, with long hair on the neck, giving it the appearance of a mane. Under the same variety may also be brought the *tragelaphus* of Gesner.

Buffon mentions a species of stag, which he calls *le cerf de Corse;* it is of a deep brown colour, and is probably the same as the small kind of stag, rather larger than a fallow-deer, which, Dr. Shaw says, is found in Barbary. Du Halde

speaks of a small kind of stag, not larger than a dog, found in Sunnan, a province in China.

There are also some other varieties of the stag; yet the histories of all of them are so intimately blended with each other by writers, that they can only be considered under one general head.

The stag is one of those creatures that seems intended to embellish the forests and animate the solitudes of nature. The easy elegance of his form, the lightness of his motions, those large branches that appear rather for the ornament of his head than its defence, the size, the strength, and the swiftness of this beautiful creature, all sufficiently rank him among the most noted objects of animated nature.

The stag or hart, whose female is called the hind, and the young a calf, differs in size and in horns from a fallow-deer. He is much larger, and his horns round; whereas, in the fallow species, they are broad and palmated. By these the animal's age is ascertained. During the first year the stag has no horns, but a horny excrescence, which is short and rough, and covered with a thin hairy skin; the next year the horns are single and straight; in the third they have two antlers, three the fourth, four the fifth, and five the sixth year; but this number is not always certain, for sometimes there are more, and often less.* After the sixth year the antlers do not always increase; and although in number they may amount to six or seven on each side, yet the animal's age is then estimated rather from the *size* of the antlers, and the thickness of the branch which sustains them, than from their variety. These horns, large as they seem, are, notwithstanding, shed *every year;* and

* The difference is obvious between a stag bred in *fertile pastures* and *undisturbed* by the hunter, and one *often pursued* and *ill nourished*. The former has his horns expanded, his antlers numerous, and branches thick; the latter has but few antlers, the traces of the blood-vessels upon them are but slight, and the expansion but little.

new ones assume their place.* The old horns are of a firm solid texture, and are extensively employed in making handles for knives and other instruments. But, while young, nothing can be more soft or tender; and the animal, as if conscious of his own imbecility at those times, instantly upon shedding his former horns retires from the rest of his species, and hides himself in solitudes and thickets, never venturing out to pasture except by night. During this time, which most usually happens in the spring, the new horns are very tender, and have a quick sensibility of any external impression. When the old horn has fallen off the new one does not begin to appear immediately; but the bones of the skull are seen covered only with a transparent periosteum or skin, which covers the bones of all animals. After a short time, however, the skin begins to swell, and to form a sort of tumour, which contains a great deal of blood; and then it is covered with a downy substance, that to the touch resembles velvet, and which appears of nearly the same colour with the rest of the animal's hair. This tumour daily increases *from the point*, like the graft of a tree; and, rising by degrees from the head, shoots out the antlers on either side, so that in a short time, in proportion as the animal is in condition, the entire horns are completed; but it should be observed, that the substance of which the horns are composed begins to harden at the bottom while the *upper part* remains soft and *still continues growing*.

Whence it appears that the horns of deer grow differently from those of sheep or cows, which latter are always seen to increase from the *bottom*. When, however, the horns have completed their full growth, the extremities then acquire solidity. The velvet-like covering, with its blood-vessels, dries up, and the former then begins to fall; and this the animal hastens by rubbing its antlers against the trees of the

* The horn of a stag, which may weigh a quarter of a hundred weight, is completely formed in ten weeks.

forest. In this manner, the whole external surface being stripped off by degrees, the horns acquire their complete hardness, expansion, and beauty. It is also said that some hinds have horns.

It would be a vain task to inquire into the cause of the annual production of these horns: it is sufficient to observe, that if a stag be emasculated when the horns are fallen off, they will never grow again; and, on the contrary, if the same operation is performed when they are on, they will never fall off. If only one side is emasculated, he will want the horn on that side. The old stags usually shed their horns first, which generally happens towards the latter end of February or the beginning of March.

Such as are between five and six years old shed their horns about the middle or latter end of March; those still younger, in the month of April; and the youngest of all, not till the middle or latter end of May.

They generally shed them in pools of water, whither they retire from the heat; and this has given rise to the opinion of their always hiding their horns. These rules, though true in general, are yet subject to many variations; and it is well known that a severe winter retards the shedding of the horns. A short time after they have gained their horns, they begin to feel the impression of the rut.

The old ones are the most forward; and about the end of August, or the beginning of September, they quit their thickets, and return to the mountain or plain, in order to seek the hind, to whom they call with a loud tremulous note. At this time their neck is swollen—they appear bold and furious—fly from country to country—strike with their horns against the trees, and other obstacles — and continue restless and fierce, until they have found the female, who at first flies from them, but is at last overtaken. When two stags contend for the same female, however timorous they may appear at other times, they then seem agitated with an uncommon degree of ardour. They paw up the earth, and

menace their opponent with their horns, bellowing with all their force, and striking in a desperate manner against each other, seeming determined upon death or victory. This combat continues till one of them is defeated or flies; and it oftentimes happens that the victor is obliged to fight several of these battles before he becomes the undisturbed master of the field. The old ones are generally the conquerors upon these occasions, as they have more strength and greater courage; and they are preferred by the hind to the younger, the latter being more feeble and less ardent.

In the rutting season, a few years ago, a gentleman, riding over Hainault forest, saw two stags fighting with more than ordinary inveteracy. After watching them a long time, and perceiving that they frequently gored each other in a dreadful manner, but still obstinately maintained the combat, without deigning to take the least notice of him, though he made all the noise he could, and rode as near to them as prudence would permit, he went to the keeper of the walk, and, returning with him and his men to the field of battle, beheld these desperate antagonists still engaged in combat, bleeding, and faint with rage and toil: with the greatest difficulty they were parted, by dint of whips and staves, after an engagement of at least two hours. Notwithstanding this, however, these animals are equally inconstant, keeping to the female but a few days, and then seeking for another, not to be obtained perhaps without a repetition of their former danger.

In this manner the stag continues to range from one to the other for three weeks, the time the rut continues; during which he scarcely eats, sleeps, or rests, but continues to pursue, to combat, and enjoy. At the end of this period of madness—for such in this animal it seems to be—the creature that was before fat, sleek, and glossy, becomes lean, feeble, and timid. He then retires from the herd to seek replenishment and repose.

In those seasons when acorns are plentiful they recover

in a very short time, and a second rut will take place towards the end of October; but this is always of a much shorter duration than the first. It is in the heat of summer, and during the time of the rut, that he is seen constantly frequenting the sides of rivers and lakes, as well to slake his thirst as to cool his ardour. He swims with great ease and strength: during the time of the rut he even ventures out to sea, and swims from one island to another in search of the female, although there may be some leagues distance between them. He leaps still more nimbly than he swims; and when pursued, can readily clear a hedge or paling of six feet in height.

The stag appears to have a fine eye, an acute smell, and an excellent ear. Like that of the cat and the owl, the eye of the stag contracts in the light and dilates in the dark, but with this difference, that the contraction and dilatation are horizontal, while, in the first-mentioned animals, they are vertical.

When deer are thirsty they plunge their noses, like some horses, very deep under water while in the act of drinking, and continue them in that situation for a considerable time.

The number of teeth of the various species of deer and the antelope tribe is generally thirty-two, namely, eight cutting teeth in the lower jaw, six molar teeth on each side of these, and six molar teeth on each side in the upper jaw; but there are frequent exceptions to this rule.

The stag is fond of the sound of the pipe, and will stand and listen attentively. Waller, in his *Ode to Lady Isabella on her playing the Lute*, has this allusion to the fondness of the animal for music:—

> "Here love takes stand, and, while he charms the ear,
> Empties his quiver on the listening deer."

Playford, too, in his *Introduction to Music*, has the following curious passage to this purpose:—"Myself," says he, "as I travelled some years since near Royston, met

a herd of stags, about twenty, on the road, following a bagpipe and violin, which, while the music played, they went forward—when it ceased, they all stood still; and in this manner they were brought out of Yorkshire to Hampton Court."

The flesh of old stags is very bad — that of the female is tolerably good; but the flesh of the young is still better. The skin and the horns are the most useful parts of this animal; from the latter is extracted the celebrated spirit of hartshorn—but the horns of all other kinds of deer yield the same salt; from the former is manufactured a pliable and durable leather.

The longevity of the stag, which became proverbial among the ancients, is in some degree a vulgar error; for though this animal, compared with many other quadrupeds, may be justly considered as long-lived,—since it is supposed in some instances to attain the age of thirty-five or forty years,—yet it is by no means possessed of the longevity ascribed to it by some of the ancients. Aristotle discountenances this silly prejudice; but it was, as Buffon observes, again revived in the days of ignorance, and supported by the story of a stag that was taken by Charles VI. in the forest of Senlis, with a collar upon the neck, bearing this inscription, "Cæsar hoc me donavit;" the people rather choosing to believe that this stag had lived a thousand years, and had received this collar from a Roman emperor, than that he came from Germany, where the emperors assumed the name of Cæsar.

The cry of the hind or female is not so loud as that of the male, and is never excited but by apprehension for herself or her young. It need scarcely be mentioned, that she has no horns, or that she is more feeble or unfit for hunting than the male. When once she has conceived, she separates from the males, and then they both herd apart. The time of gestation continues eight months and a few days, and they seldom produce more than one at a birth. Their usual season for bringing forth is about the

month of May, or the beginning of June. They take the greatest care to secrete their young in the most obscure thickets; nor is the precaution without reason, as many creatures are their formidable enemies. The eagle, the falcon, the wolf, the dog, and all the rapacious family of the cat kind, are continually seeking to discover her retreat. But what is more unnatural still, the stag himself is a professed enemy, and she is obliged to use all her arts to conceal her young from him, as from the most dangerous of her pursuers. At this season, therefore, the courage of the male seems transferred to the female; she defends her young against her less formidable opponents by force; and, when pursued by the hunter, she offers herself to mislead him from the principal object of his concern. She flies before the hounds for half the day, and then returns to her offspring, whose life she has thus preserved at the hazard of her own.

Those persons who are fond of the pastime of hunting have their peculiar terms for the different objects of their pursuit. Thus the stag is called the first year a *calf* or *hind calf;* the second, a *knobber;* the third, a *brock;* the fourth, a *staggard;* the fifth, a *stag;* the sixth, a *hart.* The female is called the first year a *calf;* the second, a *hearse;* the third, a *hind.*

It is to be observed, that the stag changes his feeding-place several times during the year. From the conclusion of the rutting season, which is in November, he feeds on heaths and broomy places. In December they herd together, and withdraw to the depth of the forests, to shelter themselves from the severer weather, feeding on elm, elder-trees, and brambles. The three following months they discontinue herding, but keep four or five in company, and come out to the corners of the forest, where they feed on winter pasture, sometimes making their incursions into the neighbouring corn-fields, to feed upon the tender shoots just as they peep above the ground. In April and May they

rest in thickets and shady places, and seldom venture forth unless roused by approaching danger. In September and October their annual ardour returns; and then they leave the thickets, boldly facing every danger, without any certain place for food or harbour. When, by a knowledge of these circumstances, the hunter has found out the residence and the quality of his game, his next care is to uncouple and cast off his hounds in the pursuit: these no sooner perceive the timorous animal that flies before them, than they altogether open in full cry, pursuing rather by the scent than by the view, encouraging each other to continue the chase, and tracing the flying animal with the most amazing sagacity. The hunters also are not less ardent in their speed on horseback, cheering up the dogs, and directing them where to pursue. On the other hand, the stag, when unharboured, flies at first with the swiftness of the wind, leaving his pursuers several miles in the rear; and at length having gained his former coverts, and no longer hearing the cries of the dogs and men that he had just left behind, he stops, gazes round him, and seems to recover his natural tranquillity. But this calm is of short duration; for his inveterate pursuers slowly and securely trace him along, and he once more hears the approaching destruction from behind. Again, therefore, he renews his efforts to escape, and again leaves his pursuers at almost the former distance; but this second effort renders him more feeble than before, and when they come up a second time he is unable to outstrip them with equal velocity. The poor animal now, therefore, is obliged to have recourse to all his little arts to escape, which seldom avail him. In proportion as his strength fails him, the ardour of his pursuers is inflamed; he tracks more heavily on the ground, and this increasing the strength of the scent, redoubles the cries of the hounds, and enforces their speed. It is then that the stag seeks for refuge among the herd, and tries every artifice to put off some other head for his own. Sometimes he will drive forth some little deer

in his stead, in the mean time lying close himself, that the hounds may overshoot him. He will break into one thicket after another, to find deer, rousing them, gathering them together, and endeavouring to put them upon the tracks he has made. His old companions, however, with a true spirit of ingratitude, now all forsake and shun him with the most watchful industry, leaving the unhappy creature to his fate. Thus abandoned of his fellows, he again tries other arts, by doubling and crossing in some hard-beaten highway, where the scent is least perceptible. He now also runs against the wind to cool himself, and seems anxious to hear the voice, and judge of the distance of his implacable pursuers. It now becomes evident how sorely he is pressed by his manner of running, which, from the bounding easy pace with which he begun, is converted into a stiff and short step; his mouth also is black and dry, without foam on it; his tongue hangs out; and the tears, as some say, are seen starting from his eyes. His last refuge, when every other method of safety has failed him, is to take the water, and to attempt an escape by crossing whatever lake or river he happens to approach. While swimming, he takes all possible care to keep in the middle of the stream, lest by touching the bough of a tree, or the herbage on the banks, he may give scent to the hounds. He is also even found to swim against the stream; whence the huntsmen have made it into a kind of proverb:

> "That he that would his chase find,
> Must up with the river, and down with the wind."

On this occasion, too, he will often cover himself under water, so as to shew nothing but the tip of his nose. Every resource, and every art, being at length exhausted, the poor creature tries the last remains of his strength by boldly opposing those enemies he cannot escape: he therefore faces the dogs and men, threatens with his horns, guards himself on every side, and for some time stands at bay. In

this manner, quite desperate, he furiously aims at the first dog or man that approaches; and it often happens that he does not die unrevenged. At that time the more prudent, both of the dogs and men, seem willing to avoid him; but the whole pack quickly coming up, he is soon surrounded and brought down, and the huntsman winds a *treble mort*, as it is called, with his horn.

In Britain the stag is become less common than formerly; its excessive viciousness during the rutting season inducing most people to dispense with this species, and rear the fallow-deer, which is of a more placid nature, in its stead. Some attempts have, indeed, been made to render stags domestic, by treating them with the same gentleness as the Laplanders do their rein-deer; and, it appears, in the Isle of France, where the Portuguese had introduced the European breed, they had so far succeeded by degrees as to render them quite domestic, many of the inhabitants keeping large flocks of them; but, when the French took possession of that island, they destroyed most of these domesticated stags. Valmont de Bromère asserts that he saw in Germany a set, or *attelage*, consisting of six stags, that were perfectly obedient to the curb and the whip; and in the magnificent stables of Chantilly, in the year 1770, there were two stags that were occasionally harnessed to a small chariot, in which they drew two persons.

Stags are still found wild in the Highlands of Scotland, in herds of four or five hundred together, ranging at full liberty over the vast hills of the north; and some of them grow to a great size. Pennant says, upon the authority of Mr. Farquharson, that one of these wild stags weighed 314 pounds, exclusive of the entrails, head, and skin. Formerly, the great Highland chieftains used to hunt with all the magnificence of eastern monarchs, assembling four or five thousand of their clan, who drove the deer into the toils, or to the station their lairds had placed themselves in. But as the chase was frequently used as a pretence for collecting

their vassals for rebellious purposes, an act was passed prohibiting any assembly of this kind. Stags are likewise met with on the moors that border on Cornwall and Devonshire; and in Ireland, on the mountains of Kerry, where they add greatly to the magnificence of the romantic scenery of the lake of Killarney.

We shall conclude this account of the stag by an anecdote which demonstrates the power of defence which this animal possesses when opposed to an enemy.

About the middle of the last century, Lord Pigot, at the instance of the late Duke of Cumberland, turned out a trained ounce, or what is called a hunting tiger, against a stag, in Windsor great park. It was in Ascot race week, and, consequently, this novelty attracted an additional concourse of people. On a lawn by the road side a proper space was fenced in with railing, very strong, and about fifteen feet high, into which an old stag was turned; and shortly after, the tiger was led in hoodwinked, by two blacks, who had the care of him, and his eyes and himself at once set at liberty. The instant he saw the deer, he couched down on his belly, and, creeping about like a house-cat at a mouse, watched an opportunity of safely seizing his prey. The stag, however, wisely and warily still turned as he turned, and, trusting to his best defence, his strange antagonist still found himself opposed by his formidable brow-antlers. In vain the tiger attempted to turn his flanks, the stag had too much generalship for him, and this cautious warfare lasted till it began to grow tedious, and his royal highness inquired if it was not possible, by irritating the tiger, to hasten this dilatory combat. He was answered, that this would perhaps be attended with danger; but still requesting it might be done, the keepers went to the animal and did as they were desired. When, immediately, instead of attacking the deer, with a furious and wonderful elastic bound, he sprung at, and cleared, the railing that enclosed him. Great, indeed, was the route among the affrighted multitude; there reigned

Pl. 27.

J. Le Keux. fc. R. Sands Jun.r del.

FALLOW DEER.

R. Sands. del. et fc.

ROE BUCK.

London Published 1.st Dec.r 1829. by J. Le Keux. Penton Place & R. Sands. Brewer St.r

" confusion worse confounded," every one imagining himself or herself the destined victim to the rage of this furious monster, who, regardless of their fears or their persons, crossed the road, and rushed into the opposite wood. It happened that a herd of fallow-deer were feeding not far from the scene of action; these he did not think it necessary to treat with so much ceremony, therefore sprang on one of them, fastened on its haunch, and brought it to the ground. His keepers, with whom he was perfectly familiarised, for some time hesitated to go near him; at length they ventured, cut the throat of the deer, and separating the haunch he had seized, which he never left a moment, hoodwinked and led him away with it in his mouth.

THE FALLOW-DEER.

Cervus Dama. Linn. *Le Dain.* Buff.

The fallow-deer is considerably smaller than the stag, and is of various colours, being of a deep brown, reddish white, and spotted. The principal mark of distinction between this species and the stag is the form of the horns, which, as in the stag, are peculiar to the male, and are palmated at their ends, pointing a little forward, and branched on the hinder side; a sharp and slender brow-antler rises from the base of each, and a smaller one at some distance above the first, pointing somewhat forward. The horns of the fallow-buck, like those of the stag, are shed annually, but at a somewhat later period. This animal is found in the woods of Lithuania and Moldavia, in Greece, the Holy Land, and north of China; it is rare in France and Germany, but is abundant in England. Those of the latter country are principally of two varieties, which are said to be of foreign origin. The beautiful spotted kind is supposed to have been brought from Bengal; and the very deep brown sort, that are now so common in several parts of the kingdom, were introduced by King James the First from Norway; for having observed

their hardiness, and that they could endure the winter in that severe climate without fodder, he brought over some of them into Scotland, and disposed of them among his chases. Since that time they have multiplied in many parts of the British empire; and England is now become more famous for its venison than any other country in the world. Whatever pains the French have taken to rival us in this particular, the flesh of their fallow-deer, of which they keep but few, has neither the fatness nor the flavour of that fed in English pastures.

There is, however, scarcely a country in Europe, except far to the northward, in which this animal is a stranger. The Spanish fallow-deer are as large as stags, but of a darker colour, and have slender necks; their tails are longer than those of ours, and they are black above, and white below.

Fallow-deer never quit their own pastures in search of females, though they will dispute and fight furiously for the possession of them. It often happens, where there is a number in one park, that they will divide into two parties, and engage each other with much resolution; but these contests generally occur from the wish they both have to graze upon some particular spot. Each of these parties has its chief, who leads on the engagement, and the rest follow under his direction. One victory is not sufficient, neither party yielding upon a single defeat; but, as the battle is renewed daily, the weakest are at last compelled to retire to some secluded part of the park, and be content with the worst pasturage.

As this animal is a beast of chase, like the stag, so the hunters have invented a number of names relative to him. The buck is the first year called a *fawn;* the second, a *pricket;* the third, a *sorel;* the fourth, a *sore;* the fifth, a *buck of the first head;* and the sixth, a *great buck.* The female is called a *doe;* the first year, a *fawn;* and the second, a *tegg.* The manner of hunting the buck is pretty much the same as that

of stag hunting, except that less skill is required in the latter.

This animal is, in general, inferior to the stag in strength, cunning, and courage; and, consequently, it affords neither so long, so varied, nor so obstinate a chase: besides, being lighter, and not tracking so deeply, it leaves a less powerful and lasting scent, and the dogs are more frequently at fault in the pursuit.

Fallow-deer may easily be tamed, and are sometimes induced to live in stables, for they appear to have a fondness for horses. At Newmarket, a few years ago, there was a deer which was accustomed to exercise regularly with the race horses; and the creature appeared delighted to gallop round the course with them in their morning training.

THE VIRGINIAN DEER.

Cervus Virginianus. GMEL. *Virginian Deer.* PENN.

This species has slender horns, bending much forward, with numerous branches on the inner sides, but no brow-antlers: it is about the size of the English fallow-deer; its colour is a light cinereous brown, and its tail is about ten inches in length. It is quite a distinct race, and peculiar to America, where they are found in vast herds; their flesh is dry, but of great importance to the Indians, who keep it for their winter provision. These animals feed on the moss which hangs in long strings from the American trees in the northern parts. They are very easily tamed, so as to return to their masters at night, after feeding during the day in the woods.

THE SPOTTED AXIS.

L'Axis. BUFF.

This animal has slender trifurcated horns, the first branch near the base, the second near the top, each pointing upwards. It is about the size of a fallow-deer; its colour a

light red, distinctly and beautifully marked with numerous white spots; the under parts are paler, and a line of white generally separates the colour of the upper from the lower parts; the tail resembles that of the fallow-deer. It is common on the banks of the Ganges, and in the isle of Ceylon. There are several varieties of this species, for example:

The Middle-sized Axis is of a light rufous brown colour, but sometimes varies to white, in which state it is considered a great rarity. It is about the size of our stag, and is never spotted. It inhabits the dry hilly forests of Ceylon, Borneo, Celebes, and Java, in herds of several hundreds.

The Great Axis. The existence of this animal is ascertained from a pair of horns in the British Museum, resembling those of the former in shape, but of a large size; they measure two feet nine inches in length, and are strong, thick, and rugged. Pennant says, "These probably came from Borneo or Ceylon; Mr. Loten having informed me of a species of stag in those islands as tall as horses, and with horns three-forked; they are of a reddish-brown colour."

The Porcine Deer has slender trifurcated horns, about thirteen inches in length: the colour on the upper part of the neck, body, and sides, is brown; the belly and rump are of a lighter colour. Height, from the hoof to the shoulders, two feet two inches; the body is thick and clumsy, but the legs are fine and slender. It inhabits Bengal, and, from the thickness of the body, is called the hog-deer: the same species is also found in Borneo.

The African Deer, which is a native of the Cape of Good Hope, is of the same size as the last, but the limbs are not so fine and slender as in that animal, being, on the contrary, short and thick. The fur is fawn colour, darkest on the back, and, like that of the axis, spotted with white. The nose is black, as are also the eyes, and the upper eyelids are furnished with long black hairs. The horns ar slender and trifurcated.

The Mexican Deer has also trifurcated horns. This species is about the size of the European roebuck, and of a reddish colour, but is often spotted with white when young. It inhabits Mexico, Guiana, and Brazil. The flesh is said to be far inferior to the venison of Europe.

The Rib-Faced Deer has trifurcated horns placed on a bony process like a pedestal, elevated three inches above the skull; the upper fork of the horns is hooked, and from each side of the upper jaw hangs a tusk. It is rather smaller than the English roebuck, but of the shape of the porcine deer: it has three longitudinal ribs, or stripes, extending from the horns to the eyes. They live only in families, and are found in Java and Ceylon.

THE ROEBUCK.

Cervus Capreolus. Linn. *Le Chevreuil.* Buff.

The roebuck is the smallest of the deer kind known in our climate, and is now almost extinct among us, except in some parts of the Highlands of Scotland. It is generally about three feet long, and about two feet high. The horns are from eight to nine inches long, upright, round, and divided into three branches. The body is covered with very long hair, well adapted to the rigour of its mountainous abode. The lower part of each hair is ash-coloured, near the end is a narrow bar of black, and the points are yellow. The hair on the face is black, tipped with ash colour. The ears are long, within of a pale yellow, and covered with long hair: the spaces bordering on the eyes and mouth are black. The chest, belly, and legs, and the inside of the thighs, are of a yellowish white; the rump is of a pure white, and the tail very short. It differs from the fallow-deer in having round horns, and not flattened like theirs. When the roebuck has renewed his horns, he rubs them against the trees, like the stag, in order to free them from the velvety skin with which they are covered; and this commonly happens about

the month of March, before the trees begin to shoot. The second horns of the roe have two or three antlers on each side; the third, three or four; the fourth, four or five; and after this their horns are seldom furnished with a farther number of antlers. The horns of the old ones are then distinguished by the thickness of their stems, the largeness of the bur, pearlings, &c.

As long as the horns continue soft they are extremely sensible, of which Buffon describes a striking example: the young shoots of a roebuck's horn were carried off by a ball, when the animal was stunned, and fell down as if he had been dead. The sportsman, who was near, seized him by the foot; but the roebuck suddenly recovering his senses and strength, dragged the man, though he was strong and alert, thirty paces into the wood. After killing him with a knife, he discovered that the roe had received no other wound.

The female goes with young but five months and a half, which serves alone to distinguish this animal from all others of the deer kind, since the rest continue pregnant more than eight. And as the growth of the roebuck, and its arrival at maturity, is much speedier than that of the stag, so its life is proportionably shorter, being seldom found to extend above twelve or fifteen years; and if kept tame, the animal does not live above six or seven.

Although the roe-deer is inferior to the stag and fallow-deer both in strength and stature, yet he is endowed with more gracefulness, courage, and vivacity; his eyes are more brilliant and animated, his limbs are nimbler, his movements are quicker, and he bounds with equal vigour and agility: he is likewise more crafty, conceals himself with greater address, and derives superior resources from his instincts, though he leaves behind him a stronger scent than the stag. This increases the ardour of the dogs; yet he knows how to evade their pursuit, by the rapidity with which he commences his flight, and by his numerous doublings. He delays not

his art of defence till his strength begins to fail him; for he no sooner perceives that the first efforts of a rapid flight have been unsuccessful, than he repeatedly returns upon his former steps, and, after confounding by those opposite motions the direction he has taken, intermixing the present with the past emanations of his body, he, by a great bound, rises from the earth, and, retiring aside, lies down flat on his belly: in this immovable situation he often allows the whole pack of his deceived enemies to pass very near him. The roe-deer differs from the stag in disposition, manner, and in almost every natural habit. Instead of associating in herds, they live in separate families. The two parents and the young go together, and never mingle with strangers. They are constant in their amours, and never unfaithful like the stag. The females commonly produce two fawns, the one male and the other female. These young animals, who are brought up and nourished together, acquire a mutual affection so strong, that they never part from each other. This attachment is something more than love, for, though always in company, they feel the rut but once in a year, and it continues only fifteen days. At this period the father drives off the fawns, as if he intended they should yield their place to those which are to succeed, in order to form new families for themselves. After the rutting season, however, is past, the fawns return to their mother, and continue with her some time longer; after which they separate for ever, and remove to a distance from the place of their nativity. When about to bring forth, the female separates from the male, and, to avoid the wolf, her most dangerous enemy, conceals herself in the deepest recesses of the forest. In a week or two the fawns are able to follow her; when threatened with danger, she hides them in a close thicket; and so strong is her parental affection, that to preserve her offspring from destruction she presents herself to be chased.

The Tailless Deer is larger than the European kind, and is common in all the temperate parts of Russia and Siberia,

especially in the mountainous tracts beyond the Volga, and in the mountains of Hyrcania; at the approach of winter it descends into the open plains. Its horns are like those of the roe, and very rugged at the base. The inside of the ears is covered with a very thick fur; the hairs of the eye-lids and about the orbits are long and black. It has no tail; but a broad cutaneous excrescence in its place. The general colour of this animal is very similar to that of the roe. The Tartars name it the *saiga*, which properly signifies *roebuck*, and which is now adopted for the Scythian antelope by the inhabitants of the Russian empire.

There is also an obscure species, which is said to be a native of Guinea, described by Linnæus as being of the size of a cat, of a gray colour, with a line of black above the eyes, and on each side of the throat another black line pointing downwards, the middle of the breast black; but as the horns were wanting in the specimen described, it is doubtful whether this animal be of the cervine tribe or not.

THE GNU.

Bos Gnu. Zimm.

The annexed print will convey a very accurate idea of this interesting and extraordinary animal.* The gnu is one of the swiftest beasts that ranges the plains of Africa. Mr. Barrow says: "The various descriptions that have been given of it, all differing from each other, should seem to have been taken from report rather than from nature, notwithstanding that one of them was for some time in the menagerie of the Prince of Orange, at the Hague. Nature, though regular and systematic in all her works, often puzzles and perplexes human systems, of which this animal affords an instance. In the shape of its body it evidently partakes of the horse,

* We are indebted to the kindness of Mr. Cadell, of the Strand, for his permission to make a copy of the engraving of the gnu, published by him in that beautiful work, *Barrow's Travels into the Interior of Southern Africa.*

Pl.28.

Drawn by S. Daniels. R. Sands. fc.

THE GNU.

Drawn by S. Daniels. R. Sands. fc.

THE KOKOON.

London. Published 1st Dec.r 1819. by J. Le Keux. Penton Place. & R. Sands. Brewer St.t

the ox, the stag, and the antelope: the shoulders, body, thighs, and mane, are equine; the head completely bovine; the tail partly one and partly the other, exactly like that of the quacha; the legs, from the knee-joints downwards, and the feet, are slender and elegant, like those of the stag; and it has the subocular sinus which is common to most, though not all, of the antelope tribe. Yet, from this imperfect character it has been arranged, on the authority of Sparrmann, in the *Systema Naturæ*, among the antelopes, to which, of the four, it has certainly the least affinity. The Linnæan system can be considered only as the alphabet of nature, the characters of which cannot be too clearly and distinctly marked; of course, external appearances only should enter into it. Perhaps the introduction of intermediate genera might, without impropriety, be adopted, and include such animals as are found to partake of more than one genus; which would also point out the nice links that unite the grand chain of creation. The gnu is a second time mentioned in the *Systema Naturæ*, and with more propriety, as a variety of the *bos caffer*, or buffalo, under the name of *elegans et parvus Africanus bos*," &c.

In these judicious remarks we mostly concur, and have accordingly arranged this animal, and also the kokoon, as a separate species of horned animals; for although the gnu in its appearance partakes greatly of the bovine race, yet, independent of the external differences in its general form, it is one of the swiftest quadrupeds that ranges the plains, while the ox is one of the heaviest.

" Its head is about eighteen inches long, the upper part completely guarded by the rugged roots of the horns that spread across the forehead, leaving only a narrow channel between them, that wears out with age, as in the instance of the buffalo; the horns project forwards twelve inches, then turn in a short curve backwards ten inches; the space from the root to the point is only nine inches. Down the middle of the face grows a sort of black hair four inches in length; and from the under lip to the throat another ridge somewhat

longer. The orbit of the eye is round, and surrounded by long white hairs, that, like so many radii, diverge and form a kind of star: this radiated eye gives to the animal a fierce and uncommon look. The same sort of vibrissæ is thinly dispersed over the lips. The neck is little more than a foot long: on the upper part is a mane extending beyond the shoulders, erect, and five inches in length; the hair-like bristles, black in the middle, and white on each side: this mane appears as if it had been cut and trimmed with nice attention. A ridge of black hair from six inches to a foot in length extends from the fore part of the chest, under the fore legs, to the beginning of the abdomen. The body is about three feet two inches long. The joints of the hip-bones project high, and form on the haunches a pair of hemispheres. The tail is two feet long, flat near the root, where the hair grows only at the sides; this is white, bristly, and bushy. The entire length, from the point of the nose to the end of the tail, is seven feet ten inches; and the height three feet six inches. The colour is that of a mouse, with a few ferruginous straggling hairs on the sides. Like the mare, it has only two teats; and all its motions and habits are equine. Though a small animal, it appears of considerable size when prancing over the plains. The gnu might be considered as an emblem of unbounded freedom, with the means of supporting it. It possesses in an eminent degree strength, swiftness, weapons of defence, acute scent, and a quick sight. When they happen to be disturbed, the whole herd begin to draw together, and to butt each other with their horns, to bound and play their various gambols, after which they gallop off to a distance. Their motions are extremely free, varied, and always elegant. Fierce and vicious as this animal certainly is in its wild state, yet it probably might not be very difficult of domestication. No successful attempts, however, have yet been made to tame it. The flesh is so like that of an ox, both in appearance and taste, that it is not to be distinguished from it."

THE GNU.

Antilope Gnus. Buff.

This is another variety of the gnu, a male and female of which have lately been exhibited at Cross's menagerie in Pall-mall East; and in their appearance partake rather more of the antelope tribe than the preceding. Mr. Pringle, who has seen this variety in its native regions, observes,* "that the gnu forms a graceful link between the buffalo and the antelope. Possessing the distinct features which, according to naturalists, are peculiar to the latter tribe, the gnu exhibits at the same time in his general aspect, figure, motions, and even the texture and taste of his flesh, qualities which partake very strongly of the bovine character. Among other peculiarities, I observed, that, like the buffalo or the ox, he is strangely affected by the sight of scarlet; and it was one of our amusements, when approaching these animals, to hoist a red handkerchief on a pole, and to observe them caper about, lashing their flanks with their long tails, and tearing up the ground with their hoofs, as if they were violently excited, and ready to rush down upon us; and then, all at once, when we were about to fire upon them, to see them bound away, and again go prancing round at a safer distance. When wounded, they are reported to be sometimes rather dangerous to the huntsman; but though we shot several at different times, I never witnessed any instance of this. On one occasion, a young one, apparently only a week or two old, whose mother had been shot, followed the huntsmen home, and I attempted to rear it on cow's milk. In a few days it appeared quite as tame as a common calf, and seemed to be thriving; but afterwards, from some unknown cause, it sickened and died. I heard, however, of more than one instance in that part of the colony, where the gnu, thus

* The Menageries, vol. i. p. 369.

caught young, had been reared with domestic cattle, and had become so tame as to go regularly out to pasture with the herds, without exhibiting any inclination to resume its natural freedom; but, in consequence of a tendency which the farmers say they evinced to catch, and to communicate to the cattle a dangerous infection, the practice of rearing them as curiosities has been abandoned."

THE KOKOON.

Our engraving of this extraordinary animal is made by permission of Mr. William Daniel, from a figure given by him in his admirable work entitled, *Sketches representing the Native Tribes, Animals, and Scenery of Southern Africa.* We are not aware that the kokoon has hitherto been described by any naturalist, and we shall quote our account from Mr. Barrow, who, in his *Voyage to Cochin China,* says, "A party of the Dutch boors had the good fortune to shoot an animal that was totally unknown to any person in the expedition. It was called by the Booshwanas the kokoon. In its general appearance it bore a resemblance to the gnu, but was of a much larger size. It measured in height four feet five inches; in length, from the head to the rump, five feet. The head was one foot ten inches long; ears ten inches; tail, of long black hair, three feet three inches, resembling that of a horse; neck uncommonly thick in proportion to the body. It had a mane, very unlike that of the gnu, flowing over its shoulders, and continuing to the middle of the back. The forehead, like that of the buffalo, was covered with an osseous excrescence, being, in fact, the root of the horns, which were terminated in fine pointed extremities, like those of the gnu. From the centre of the forehead to the nose was an arched, or concave protuberance, covered with a ridge of long black hair; and on each cheek, a little below the eye, was a remarkable spot of a circular form, rather more than an inch in diameter, naked, and apparently

R. Sands. fc.

CAMEL.

R. Sands. fc.

DROMEDARY.

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glandular, the surface being made up of bundles of fine vessels, out of the orifices of which oozed a white viscous matter. Close under the glands grew tufts of black hair; a long black beard, like that of the gnu, covered the throat from the chin to the breast; the nose and mouth were like those of an ox, but more broad and flat. The general hue of the body was of an ash-coloured gray. It had neither the speed, the activity, nor the spirit of the gnu. Of this extraordinary animal Mr. S. Daniell made an accurate drawing."

THE ARABIAN CAMEL, OR DROMEDARY.

Camelus Dromedarius. LINN. *Le Dromedaire.* BUFF.

The character of this genus consists in having no horns; six front teeth in the lower jaw, two in the upper; two canine teeth in each jaw; six molar teeth on each side in the upper, and five on each side in the lower jaw; the upper lip cleft, or divided.

Zoologists discriminate seven species of the camel. The first that we shall notice is the Arabian camel, which is distinguished by having only one bunch on the back.

There are several varieties among these camels. The Turkman is the largest and strongest, the Arabian is hardy, and what are called the dromedary, maihary, and raguahl, are very swift. The common sort travel about thirty miles a-day. The latter, which have a less bunch and more delicate shape, and which are also much inferior in size, never carry burdens, but are used to ride on. Indeed, the dromedary is to the other camels what a racer is to a draught horse. In Arabia they are trained for running matches; and in many places for carrying couriers, who can go above one hundred miles a day on them, and that for nine days together, over burning deserts, uninhabitable by any living creature. But the African camels are the most hardy, they having more distant and more dreadful deserts to pass over than any of the others, from Numidia to the kingdom of Æthiopia.

The general height of the camel, measured from the top of the bunch to the ground, is about six feet six inches; but from the top of the head, when the animal elevates it, it is not much less than nine feet: the head, however, is usually so carried as to be nearly on a level with the bunch, the animal bending the neck very much in its usual posture. The head is small; the neck long; the body of a long and meagre shape; the legs rather slender; and the tail, which is slightly tufted at the extremity, reaches to the joints of the hind legs; the feet are very large, and are hoofed in a peculiar manner, being divided into two lobes not quite through the whole length of the foot; their bottom surface exceedingly tough, yet pliant, and, by yielding in all directions, enables the animal to travel with ease and security over dry, hot, stony, and sandy regions. On the legs are six callosities, namely, one on each knee, one on the inside of each fore leg on the upper joint, and one on the inside of each hind leg at the bottom of the thigh. On the lower part of the breast, also, is a large callous tubercle, which is gradually increased by the constant habit which the animal has of resting upon it in lying down. The hair is soft; longest about the neck, under the throat, and about the bunch: the colour of that on the protuberance is dusky, on the other parts a reddish ash colour. This species is common in Africa and the warmer parts of Asia; but yet it is not spread over either of the continents. It is a common beast of burden in Egypt, and along the countries which border on the Mediterranean Sea, in the kingdom of Morocco, Sara or the Desert, and in Æthiopia, but no where south of those kingdoms. In Asia it is equally common as in Turkey and Arabia; but is scarcely seen farther north than Persia, being too tender to bear a more severe climate. Ludolphus says it is not to be found in India.

Each species of the camel and lama kind have very remarkable peculiarities connected with the economy of their reproduction, in which they differ from all other animals. The genital parts of the male are like those of the bull, but

are placed pointing backwards, so that its urine seems to be ejected in the manner of the female: the latter goes with young between eleven and twelve months, and usually has but one foal at a time, which sucks its mother about twelve months. The camel lives generally about forty or fifty years, but seldom longer.

Besides being exceedingly useful for the saddle, as a beast of burden, for the yoke, and as wholesome food, the camel possesses other qualities not less valuable: its hair is an important article of commerce, and serves likewise for the fabrication of the tents and carpets of the Arabs, and for wearing apparel; rich shawls are also made of it that are in great request. The Tartar women manufacture a narrow sort of cloth of it, which is used of its natural colour; a broad cloth, too, is, or at least was formerly, produced from the same material at the manufactory of Novorosseeisk, or Ekaterinoslavl, in the Crimea. Curious cloths are also formed of it in Persia at this time. The dung of the camel is used as fuel, and of the urine sal ammoniac is made.

The patience of the camel under hunger is such, that it will travel many days while fed only with a few dates, or some small balls of bean or barley meal, or on the miserable thorny plants it meets with in deserts.

The facility with which camels abstain from drink in their journies over the burning deserts is more remarkable than their abstinence from food; and it is so extraordinary, that they pass over unwatered tracts for seven or eight days without requiring the least liquid, — Leo Africanus says for fifteen. They can discover water by their scent at half a league's distance; and, after a long abstinence, will hasten towards it long before their drivers perceive where it lies; but it is said, that on such occasions they are apt, on their first meeting with water, to drink so greedily that it proves suddenly fatal to many of them. This power of abstinence from drink does not proceed from habit alone, but is rather, as Buffon observes, the effect of their structure. Inde-

pendently of the four stomachs which are common to ruminating animals, the camel is possessed of a bag which serves him as a reservoir to retain water. This fifth stomach is peculiar to the camel: it is so large as to contain a great quantity of water, which remains there without corrupting, or intermixing with other aliments. When the animal is oppressed by thirst, or has occasion for water to macerate his dry food in ruminating, he causes a part of the water to ascend into his stomach, or even as high as the throat, by the mere contraction of certain muscles. It is by virtue of this conformation that the camel is enabled to pass several days without drinking, and to take at any one time a prodigious quantity of water, which remains in the reservoir pure and limpid, because neither the liquors of the body nor the juices of digestion can mix with it. There can be no doubt that the water preserved by the camel in this receptacle remains perfectly pure, all writers agreeing in this particular; nor is it an uncommon circumstance, in passing through the deserts, for travellers to kill a camel in order to obtain a supply of water from this receptacle, when they are destitute of this necessary article, and cannot procure it in any other manner. The loss of a camel on such an occasion is of little consideration, as the flesh affords the traveller a rich repast, independent of the advantage of being supplied with water. Instances of this occur in Bruce's Travels, and other narratives.

The hump on the back is so far from being a callosity produced by ill usage or friction, as conjectured by Buffon, that it is a soft, fatty substance, which is gradually absorbed into the system when the animal is without food, and is again renewed when he obtains pasturage; so that, upon the whole, we are persuaded those dorsal hunches are natural, both for this reason, and because throughout all the varieties of the two most frequent kinds of camel, the Arabian and Bactrian, one race is constantly distinguished by having no more than a single dorsal hunch, and the other two. Were

these hunches the effect of accident or of heavy pressure only, we should certainly find nature less constant in this particular.

There cannot exist a doubt that Asia is the original country of the camel. The earliest notice of commerce in the sacred writings is associated with the caravans: when Joseph's brethren had cast him into the pit, "they sat down to eat bread; and lifted up their eyes and looked, and behold a company of Ishmaelites came from Gilead, with their *camels* bearing spicery, and balm, and myrrh, going to carry it down to Egypt."* The camel of Asia is frequently mentioned, not only by sacred but profane writers, not as connected with their commerce alone, but also with their warlike operations. It was a custom of the Hebrew nations, when they went to battle, to adorn their camels with studs and collars of gold. "And Gideon arose, and slew Zebah and Zalmunna, and took away the ornaments that were on their camels' necks."† And the same practice of adorning camels is said to exist at the present time in many of the countries of Asia. The camel was also known in Egypt from the earliest antiquity; for in the twelfth chapter of Genesis we find it stated, that Pharaoh bestowed camels upon Abram when he came with his wife into that country.

In Arabia the camel is to the present day considered as a sacred animal by the natives.‡ Its milk makes a part of their nourishment; they feed upon its flesh, particularly when young; they clothe themselves with its hair, which it is seen to moult regularly once a year; and, if they fear an invading enemy, their camels serve them in flight; and in a single day they are known to travel above a hundred miles.

* Genesis, xxxvii. 25. † Judges, viii. 21.

‡ The camel that carries Mahomet's standard, which the caravan of pilgrims offer yearly on the tomb of their prophet, is exempted the rest of its life from all services. It is even pretended that this happy beast will rise again at the general resurrection, and enjoy the pleasures of paradise.

Thus, by means of the camel, an Arab finds safety in his deserts. All the armies upon earth might be lost in pursuit of a flying squadron of this country, mounted upon their camels and taking refuge in solitudes, where nothing interposes to stop their flight or to compel them to wait the invader.

Scarcely any thing can be more dreary than the aspect of these sandy plains, which seem entirely destitute of life and vegetation. Wherever the eye turns, nought is presented but a sterile and dusty soil, sometimes torn up by the winds, and moving along in great waves, which, when viewed from an eminence, resemble less the earth than the ocean: here and there a few shrubs appear, which only teach us to wish for the grove; for they remind us of the shade in these sultry climates, without affording its refreshment. The return of morning, that in other places carries an idea of cheerfulness, here serves only to give man a clearer idea of his own wretchedness and impotence, and to present before his eyes the horror of his forlorn situation; yet in this chasm of nature, by the help of the camel, the Arabian finds safety and subsistence. Here and there are found spots of verdure, which, though remote from each other, are, in a manner, approximated by the labour and industry of this animal. Thus these deserts, which present the stranger with nothing but objects of danger and sterility, afford the inhabitant protection, food, and liberty. The Arabian lives independent and tranquil in the midst of his solitudes; and, instead of considering the vast deserts spread around him as a restraint upon his happiness, he is taught by experience to regard them as the ramparts of his freedom. But man never uses a thing without abuse. This same free, independent, tranquil, and even rich Arab, instead of regarding his deserts as the fence of his own independence, pollutes them with his crimes. He traverses them to carry off gold and slaves from the adjacent nations; he avails himself of them for perpetrating his robberies, which, unfortunately, he enjoys more than his

liberty. An Arab who destines himself to this kind of piracy, is early accustomed to the fatigues of travelling, to want of sleep, and to endure hunger, thirst, and heat. With this view he instructs, rears, and exercises his camels: a short time after their birth, he folds their limbs to remain on the ground, and in this situation he loads them with a pretty heavy weight, which is seldom removed but for the purpose of replacing a greater. Instead of allowing them to roam and to feed at pleasure, or to drink when they are thirsty, he regulates their repasts, and makes them gradually travel long journeys, diminishing, at the same time, their quantity of food. When they acquire strength, he inures them to the course: he excites their emulation by the example of horses, and, in time, renders them equally swift, and more robust. At length, when he is assured of the strength, fleetness, and sobriety of his camels, he loads them with whatever is necessary for his and their subsistence, departs with them, arrives unexpectedly at the confines of the desert, robs the first passenger he meets, pillages the straggling habitations, loads his camels with the booty, and, if pursued, is obliged to accelerate his retreat. It is on these occasions that he displays his own powers, and those of his camels: he mounts one of the fleetest, and, conducting the troop, makes them travel night and day, almost without stopping either to eat or drink; and in this manner he easily passes over the space of three hundred leagues in eight days. During all that time of fatigue and travel he never unloads his camels, and only allows them an hour of repose, and a ball or two of paste each day; and they often run in this manner for eight or nine days, without meeting with any water. Thirst makes them redouble their pace when they are near it; and they drink as much at once as serves them for the time that is past, and for as much to come, for their journey often lasts several weeks, and their abstinence continues till their journey is accomplished.

Camels that form a part of the mercantile caravans,

unlike those of the predatory Arabs, are relieved from their load every night, and allowed to feed at liberty; and in a country where they find abundant pasture, they eat in one hour sufficient to ruminate a whole night, and to nourish them for twenty-four hours. But it is seldom they meet with such pasturage; neither is this delicate food necessary for them. They even seem to prefer wormwood, thistles, nettles, furze, and other prickly and thorny vegetables, to the softest herbs; and so long as they can find herbage they can easily dispense with drink. Besides qualities of such general utility, in passing over the dreary regions of the deserts, these valuable animals possess no ordinary share of sagacity. They are said, indeed, to be extremely sensible of injustice and ill treatment. The Arabs assert, that if a person beat them without cause, he will not find it easy to escape their vigilance, and that they will retain the remembrance of the ill usage till an opportunity offers for gratifying their revenge, having in this point a striking similarity of character with their Arab masters.

The camel will ascend and descend hills that are very steep. In the desert they sometimes meet with sand-banks from twenty to sixty feet high, and almost perpendicular, which must be crossed. In such situations they constantly blunder and fall, with their heavy load; and in descending the Arabs hang with all their weight on the animals' tails to steady them.*

The largest kind will carry a load of 1000 or 1200 lbs. weight. They kneel down to be loaded, but rise when they find the burden equal to their strength, and will not permit any more to be put on. The camel is so capable of sustaining a very large and unwieldy burden, that his owner seldom hesitates about the bulk or the awkwardness of what he places on his back.

Mr. Buckingham saw camels carrying millstones to the

* Denham, p. 28.

large towns on the west of the Jordan, each of which was nearly six feet in diameter; and one being laid flat on the animal's back, in the very centre of the hump, and resting on the high part of the saddle, was secured by cords passing under his belly. The camel sometimes carries large panniers, filled with heavy goods; sometimes bales are strapped on his back, fastened either with cordage made of the palm-tree, or leathern thongs; and sometimes two or more will bear a sort of litter, in which women and children ride with considerable ease. Captain Lyons, when amongst the Arabs of Northern Africa, observed many of the children carried in leathern bags, which are generally used to hold corn; and, in one instance, he saw a nest of children suspended on one side of a camel, and its young one in a bag hanging on the other.

It is asserted that camels cannot be prevailed on to quicken their pace by blows, but go freely if gently treated; and seem enlivened by the pipe, or any music.

"I have sometimes seen hadjins, or dromedaries, in Upper Egypt," says Sonnini, "weary of the impatience of their riders, stop short, turn round their long neck to bite them, and utter cries of rage. In these circumstances the rider must be careful not to alight, as he would infallibly be torn to pieces; he must also refrain from striking his beast, which would only increase his fury. Nothing can be done but to have patience, and appease the animal by patting him with the hand, which frequently requires some time, when he will resume his way and his pace of himself."

The males are not only ungovernable, but even furious, in the rutting time, which continues for the space of forty days, and returns every spring. At this season they emit frequently a kind of hoarse lowing, with a strong rattling in the throat; they continually foam, and one or two red vesicles, as large as a hog's bladder, and of a disgusting appearance, hang out of their mouths. They are extremely dangerous at such times; and it is said, that in their fits of

rage they will sometimes take up a man in their teeth, throw him to the ground, and trample him to death.

The Turks take a sad advantage of these periodical fits of rage, which constitute an exception to the general character of this useful quadruped; and at these particular seasons camel-fights are common at Aleppo and at Smyrna. Such exhibitions are the disgrace of the vulgar and the unfeeling (be they the *high* or the *low* vulgar) of all countries. The lion-fights of the fierce and savage Romans, the bull-fights of Spain, the bull and badger-baitings and cock-fights of England, and the camel-fights of Asia Minor, are truly and equally indications of a barbarous spirit, which knowledge and true religion only can eradicate. The bite of the camel is dreadful, always bringing the piece out; they are consequently muzzled, to prevent their being seriously injured in these exhibitions of contest. The camels of Smyrna are led out to a large plain filled with eager crowds; and when two of these animals are let loose, they run at each other with extreme fury. Mr. Macfarlane thus describes this curious scene: —

"One of the favourite holiday amusements of the Turks of Asia Minor is furnished by the camel combats. An enclosure is made, and two camels, previously muzzled so that they cannot hurt each other much, are driven in and incited to fight. Their mode of combat is curious: they knock their heads together (literally), twist their long necks, wrestle with their fore legs, almost like bipeds, and seem to direct their principal attention to the throwing down of their adversary. During this combat the Turks, deeply interested, will back, some one camel and some the other; and they will clap their hands and cry out the names of their respective favourites, just as our amateurs do with their dogs, or as the Spaniards, at their more splendid and more bloody bull-fights, will echo the name of the hardy bull or the gallant matador. The pacha of Smyrna used frequently to regale the people with these spectacles in an enclosed square before

his palace; and I saw them, besides, once at a Turkish wedding, at the village of Bouruabah, near Smyrna, and another time, on some other festive occasion, at Magnesia. I once, however, chanced to see a less innocent contest, which I have noticed in my volume of Travels. This was on the plain between mounts Sipylus and Tartalee and the town of Smyrna. It was a fight in downright earnest. Two huge rivals broke away from the string, and set to in spite of their drivers. They bit each other furiously, and it was with great difficulty the devidgis succeeded in separating them."

Pallas conceives that camels would be serviceable in war, both as beasts of burden, and in putting to flight any cavalry, the horses of which are unaccustomed to the sight of these curious animals. And, indeed, the Russians begin to be aware of the value of the camel for the purposes of war. In the year 1796 no fewer than a thousand camels were bought up in Crim Tartary for the use of the army of Persia. In Russia the price of a full grown camel is generally from 100 to 150 rubles, or from 22*l.* 10*s.* to 33*l.* 15*s.* sterling. The Egyptians keep large numbers of camels, which are bred and sold by them to the Arabs. They fetch a pretty high price: at Cairo, according to Sonnini, they are worth 400 or 500 livres each, which is about the lowest average price they bear in Russia. But in Upper Egypt they are not so dear, their price varying from 200 to 300 livres.

THE BACTRIAN CAMEL.

Camelus Bactrianus. Linn. *Le Chameau.* Buff.

This species is distinguished from the preceding by having two dorsal bunches, but is like it in most other respects, and is equally adapted for riding or carrying loads. It is extremely hardy, and is common in Asia; and greatly used among the Tartars and Mongols, as a beast of burden, from the Caspian Sea to the empire of China. It bears even the severe climate of Siberia, being found about the lake Baikal,

where the Buriats and Mongols keep great numbers of them; but they are considerably smaller than those which inhabit Western Tartary. Here they live during the winter on the leaves of willows and other trees, and are by this diet reduced to a very lean state. They lose their hair in April, and go naked all May, amidst the frosts of that severe climate. They thrive best in dry grounds, and among the salt marshes. This animal is reared in China, where they have a breed of peculiar swiftness, that bears the expressive name of Fong Kyo Fo, or camels with feet of wind. From Pallas it may be seen that the Bactrian camel is more common in various districts of the Russian territory than is generally conceived. They rarely employ this creature like the Arabian camel, as a beast of burden, but train it for the saddle, and for drawing travelling waggons and similar machines, in the manner which Europeans train horses. This is the camel which authors mention as still existing in a wild state in the deserts of the temperate parts of Asia, more especially in those between China and India; and which is said to be larger than the domesticated race. Camels have been introduced into Jamaica and Barbadoes; but, for want of knowledge of their diet and treatment, they have, in general, proved of very little service.

THE LAMA.

Camelus Glama. Linn. *Le Lama.* Buff.

The lamas form a secondary class of camels, and offer but small differences to the eye of the naturalist, in their anatomical construction, from those animals. The foot of the lama differs from that of the camel, inasmuch as it is not entirely covered with an elastic sole which joins the two toes. The lama also wants the second canine tooth in the lower jaw. Even the absence of the hump in the lama species is not an anatomical variety constituting a separate genus; for, as the skeleton of the Bactrian camel with two humps

J. Le Keux. fc. Drawn by R. Sands Junr from the living animal in the Zoological Gardens.

THE BROWN LAMA.

R. Sands. fc. Drawn by R. Sands Junr from the living animal in the Zoological Gardens.

THE WHITE LAMA.

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does not differ from that of the Arabian with one, so the arrangement of the bones of the lama precisely agrees with the conformation of the camel.

The general size of the lama is nearly that of a stag, measuring about four feet in height to the top of the shoulders, and about six feet from the nose to the tail; the neck is long, and very protuberant near its junction with the body; the head small; the back slightly elevated; and the whole animal bears some resemblance to a camel; and, like the latter, it has the faculty of abstaining a long time from water. Its general colour is a light ferruginous brown, paler, or whitish, on the under parts: some are quite white, and others, it is said, are quite black. The brown lama, from which our drawing was made, principally attracted attention by the lightness of its make, the brilliancy of its eye, and the vivacity of its movements: he was presented to the Zoological Society by Robert Barclay, Esq., but is since dead. This lama often exhibited the peculiarity of standing nearly erect on his hind legs, and also of spitting copiously over any person with whom it was offended; and the visitors of the gardens had abundant opportunities of disproving what has been so often and so erroneously asserted, that its saliva had something venomous in its quality. The power of his teeth was considerable; for, upon a sudden fit of rage, he tore a large piece out of a strong door at one effort.

The white lama in the same gardens was presented by the Duke of Bedford, and differs very much from the preceding, as will be seen by our engraving. He is of a larger size and more muscular form, and his fleece is covered with much coarser and longer wool; while in his disposition he is usually exceedingly mild and familiar. The large and brilliant eye, the prominence of the upper lip beyond the nose, and the extreme flexibility of the ear, sometimes pointing forward, and then suddenly backward, are characteristics of all the lamas.

The growth of the lama is very quick, and its life is but short. At the age of three years it couples, bears its young about six months, and remains strong and vigorous about twelve years, after which it begins to decline, and becomes entirely useless at the age of fifteen. In their nature they appear to resemble their Indian masters, being gentle and phlegmatic, and performing every thing with the greatest leisure and caution. When they sleep or ruminate, they rest with their feet folded under their bellies. If overloaded, or too much fatigued, they sink down, and will not rise again though the driver should beat them with the greatest violence: if the driver continue his persecutions, the animal grows desperate, and, it is said, destroys himself by beating his head against the ground.

The Americans early found out the useful qualities of the lama, and availed themselves of its labours; like the camel, it serves to carry goods over places inaccessible to other beasts of burden; and, like that, it is obedient to its driver, and often dies under his cruelty.

Lamas are not found in the ancient continent, but belong exclusively to the new; nor are they found spread all over America, but are chiefly found upon those mountains that stretch from New Spain to the Straits of Magellan. They inhabit the highest region of the globe, and seem to require purer air than animals of a lower situation are found to enjoy; here also, it is said, they find in abundance the plant which the Peruvians name *ycho*, or *ychu:* this is denominated by the authors of the *Flora of Peru*, *xarava*, and which appears to be their natural food. This plant is described as flourishing luxuriantly on the loftiest pinnacles of those mountains, amidst the snow and ice with which they are perpetually surrounded.

Peru seems the place where lamas are found in the greatest numbers. In Mexico they are introduced rather as curiosities than as beasts of burden; but in Potosi, and other provinces of Peru, they constitute the chief riches of the

Indians and Spaniards who rear them. Their flesh is excellent food; their hair, or rather wool, may be spun into beautiful clothing; and in the most rugged and dangerous ways they are capable of carrying burdens, not exceeding a hundred weight, with the greatest safety. It is true, indeed, that they travel but slowly, and seldom above fifteen miles a-day; their step is heavy, but sure; they descend precipices, and find footing among the most craggy rocks, where even men can scarcely accompany them; they are, however, but feeble animals, and after four or five days labour are obliged to repose for a day or two. They are chiefly used in carrying the riches of the mines of Potosi; and we are told that there are above three hundred thousand of these animals employed in this manner.

THE GUANACO.

The huanaco, or guanaco, of Molina's *Natural History of Chili,* is distinguished specifically, according to that author, by having the body hairy, the back gibbous, and the tail erect.

The size of the guanaco is equal to that of a horse; the length, from the muzzle to the insertion of the tail, being about seven feet, and the height from four to five feet. They are very numerous all along the chain of the Cordilleras, which are full three thousand fathoms above the level of the sea at Peru. They associate in herds of two or three hundred. Should a man approach, they view him with apparent astonishment at first, without expressing any signs of fear; but quickly, as if by mutual consent, they blow through their nostrils, neigh like horses, and then, by a rapid flight, take refuge on the tops of the mountains.

The natives of Chili hunt the guanaco for the sake of its fleece: the dogs have much difficulty in following them; and should they once gain the rocks, both hunters and dogs are then frequently compelled to relinquish the chase. The flesh of the young ones, according to Molina, is as good as

veal; but that of the full grown animal is hard and dry. The hair is used for making caps or hats, and in the manufacture of some kinds of Peruvian cloth. Buffon considered the guanaco to be the same as the former species of the lama; but Molina has given some cogent reasons for his opinion to the contrary, in which he is borne out by the distinction made between these two animals by the Peruvians themselves.

These animals are considerably stronger, swifter, and of a livelier disposition, than the lama.

THE PERUVIAN CAMEL.

Camelus Arcuanus. Linn.

This variety inhabits Chili and Peru; and Molina describes it as measuring about six feet from the nose to the tail, and nearly four feet high. Its general appearance is not unlike a ram, and we find it covered with a beautiful woolly hair. The snout is curved upwards; the ears are flaccid, or pendulous; the tail resembles that of a sheep; and the legs and neck are long: the wool, we have mentioned, is very delicate and soft. The colour varies considerably in different individuals, being either brown, black, white, or ash-coloured. The ancient inhabitants of Peru and Chili employed this animal extensively as a beast of burden, as well as in ploughing. Its wool, too, was highly esteemed for the manufacture of a fine silky cloth, or stuff; and the present inhabitants employ it in a similar manner, which has been the cause of the exclusion of European wool, this being stronger and more serviceable.

THE VICUNNA.

Camelus Vicugna. Linn. *Vicunna.* Pennant.

Upon comparing this animal with the lama, we perceive a general resemblance; but, on closer inspection, it is found to be more delicate in its appearance, and smaller in size. The

eyes are very large and full, the ears somewhat sharper, the head smaller and shorter in proportion to that of the lama, and the limbs more delicate and slender. The prevailing hue of the vicunna is of a reddish brown on the upper parts, and the remainder of an Isabella colour, except the breast, belly, insides of the thighs, and under the inferior parts of the tail, which are white. The hair of this animal is of a soft, wavy, and woolly nature; that on the breast being about three inches in length, but not more than one inch on the other parts; except the end of the tail, which, like the breast, has a beautiful long woolly hair. In order that he may be assured he is not deceived, the merchant purchases the hair on the skin, as, otherwise, that of the paco, which is considerably coarser, might be substituted for it. Cloth, exceedingly fine in its texture, is manufactured from it both in Peru and Spain, the wool being exported into the latter country.

This animal inhabits the loftiest summits of the Andes, and was once domesticated in Peru, as is the lama at the present day; but this breed is now extinct, and they are only to be found in a wild state among the mountains. The mode in which they are hunted is as follows:—A number of the Indians assemble and drive these creatures into some narrow pass, across which they have previously extended cords four feet from the ground, having bits of wool or cloth hanging to them at small distances: by this artifice the vicunnas are so terrified that they dare not pass, but huddle together in crowds, and thus afford their pursuers an opportunity of destroying them with their slings.* Nor is it uncommon for a troop of these hunters to return home with five hundred, or perhaps a thousand skins; and it is supposed that no fewer than 80,000 of these animals are killed yearly,

* The circumstance of these animals being thus terrified is by no means peculiar to this order, but takes place, as is well known, in many of the deer family, and particularly in the common fallow-deer, which may easily be confined in a similar manner.—SHAW.

solely for their wool, yet the species does not appear to diminish.

These animals may be domesticated with ease, and would render considerable advantage to individuals and the state, under proper regulations.

THE PACO.

Camelus Paco. Linn. *Pacos.* Pennant.

This variety, which is specifically distinguished by having no bunches, is domesticated and confined to Peru, where the inhabitants preserve large flocks, on account of their wool, which they manufacture into a cloth of a fine silky lustre and softness, but not so delicate as that formed of the wool of the vicunna.

The wild pacos inhabit and pasture on the highest mountains. Snow and ice seem rather to refresh than to be inconvenient to them. They associate in herds, and run swiftly. They are very timid; for as soon as they perceive a person they take flight, driving their young before them. The Indians seldom make use of the milk of the pacos, because they yield scarcely sufficient for their own young. The pacos produce that kind of bezoar known by the name of occidental, in great abundance, as do all the huanacos, and the rest of the lama tribe, or Peruvian camels; but it is only from those animals, when in a wild state, that bezoar of any estimation can be obtained.

The wool of the pacos is very long, and, in the domesticated animal, varying from a black or white to a tawny hue; but in the wild state it is of a dull purple colour, with white underneath. The wild pacos are hunted by the Indians in a similar manner to the vicunnas; but the ancient Peruvian kings prohibited the chase of them, on account of their slow multiplication. The domestic pacos are employed to carry burdens, like the lamas; but they can only bear a much less weight in proportion to their size, and are seldom able to

carry more than from fifty to seventy pounds. They are, besides, of a very stubborn disposition, and when they once lie down under their load, it is not in the power of man to make them rise again and prosecute the journey, until they feel inclined to do so.

Many naturalists have considered the paco as forming an intermediate variety between the vicunna and lama. According to Molina, it is not found in Chili, either wild or domesticated. Experiments have been made to rear them in Spain, but without success.

THE HOG.

Animals of the hog kind seem to unite in themselves several of those distinctions by which others are separated. They resemble those of the horse kind in the length of their head, and in having but a single stomach; while they resemble kine in their cloven hoofs, and the position of their intestines; and quadrupeds of the claw-footed kind in their appetite for flesh, in not chewing the cud, and in their numerous progeny. Thus this species serves to fill up that chasm which is found between the carnivorous kinds and those that live on grass, being possessed of the ravenous appetite of the one, and the inoffensive nature of the other. We may consider them, therefore, as a middle class, which we can refer to neither of the others, although they partake somewhat of the nature of both.

The generic character of the hog kind is as follows: — Four front teeth in the upper jaw, converging; six in the lower jaw, projecting; two canine teeth or tusks in the upper jaw, and two in the lower, standing out; the snout prominent, truncate, and moveable; and the feet mostly cloven,—there being a remarkable variety of this animal about Upsal, which is single-hoofed, like the horse, but in no other respects differing from the common kind. It is also

said to be found in Illyria, and in the canton of Neorro, in the island of Sardinia; and Mascal says, this whole-footed race existed in his days in the neighbourhood of Windsor, in Berkshire.

THE WILD BOAR.

Tus Aper. Linn. *Le Sanglier.* Buff.

This animal is found in most parts of Europe (except the British isles and the countries north of the Baltic), in Asia, from Syria to the borders of the lake Baikal, and as high as 55° north latitude, and in Africa, on the coast of Barbary. They are also very numerous in Ceylon, Celebes, and Java. Pennant asserts that the wild boar was formerly a native of this country, as appears from the laws of Hoel Dda, who permitted his grand huntsman to chase that animal from the middle of November to the beginning of December; and it is asserted by Fitz-Stephens, that the vast forest, which in his time grew on the north side of London, was the retreat of stags, wild boars, and bulls.

The wild boar is by no means so stupid nor so filthy an animal as that which we have reduced to a state of tameness. He is the original of all the varieties we find in the European hog, our domestic breed, and the Chinese kind, but is much smaller than many of our tame varieties, and does not present the diversity of colour of the latter, being always found of an iron gray, inclining to black; his body is covered with bristles, beneath which is a soft curled hair. The snout is longer than that of the tame hog, and the ears are shorter, rounder, and black; of which colour are also the feet and the tail. He roots up the ground in a different manner from the common hog; for, as the latter turns up the earth in little spots here and there, so the wild boar ploughs it up like a furrow, and does irreparable damage to the cultivated lands of the farmer. The tusks also of this animal are larger than in the tame breed, some of them being ten inches in length.

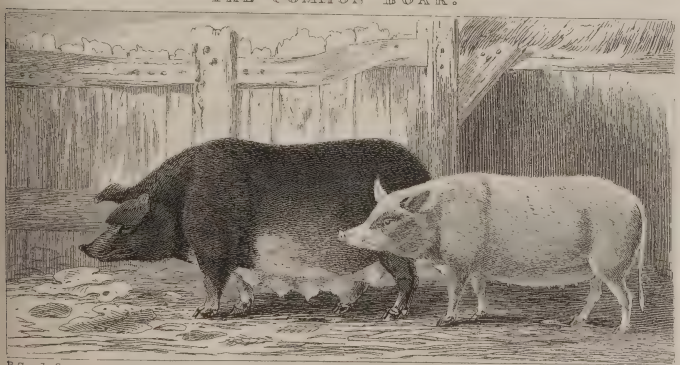
Pl.31.

R. Sands. del et fc.

THE WILD BOAR.

I. Le Keux del et fc

THE COMMON BOAR.



R. Sands. fc.

R. Sands. Junr. del

THE COMMON SOW. | THE CHINESE SOW.

London: Published March 1st 1830 by J. Le Keux Penton Place & R. Sands Brewer St.

These, as is well known, grow from both the under and upper jaw, bent circularly, and are exceedingly sharp at the points. They differ from the tusks of the elephant in this, that they never fall; and it is a peculiarity of all the hog kind, that *they never shed their teeth*, as other animals do. The tusks of the lower jaw are always the largest, and the most to be dreaded, since they are capable of inflicting very terrible wounds.

The wild boar can properly be called neither a solitary, nor a gregarious animal. The first three years the whole litter follows the sow, and the family lives in a herd together. They are then called beasts of company, and unite their common forces against the invasions of the wolf, or the more formidable beasts of prey. Upon this their safety principally depends while young; for, when attacked, they give each other mutual assistance, calling to one another with a very loud and fierce note; the strongest then face the danger—they form a ring, and the weakest fall into the centre. In this position few ravenous beasts dare venture to attack them, but pursue the chase, where there is less resistance and danger. When, however, the wild boar has attained a state of maturity, and become conscious of his own superior strength, he walks the forest alone, and fearless. At that time he dreads no single creature; nor does he turn out of his way even for man himself, neither seeking nor avoiding danger. He usually inhabits woods, living on various kinds of vegetables, such as roots, mast, acorns, &c.; and also occasionally devours animal food.

Hunting this animal is one of the principal amusements of the nobility in those countries where it is to be found. The dogs provided for this sport are of the slow, heavy kind. Those used for hunting the stag or the roebuck would be very improper, as they would too soon come up with their prey, and, instead of a chase, would only furnish an engagement. Small mastiffs are, therefore, chosen; nor are the hunters particular as to the goodness of their nose, since the

wild boar leaves so strong a scent that it is impossible for them to mistake its course. They never hunt any but the largest and oldest, which are known by their tracks. When the boar is *reared* (as is the expression for driving him from his covert), he goes slowly and uniformly forward, not much afraid, nor very far before his pursuers. At the end of every half mile, or thereabouts, he turns round, stops till the hounds come up, and offers to attack them. These, on the other hand, knowing their danger, keep off and bay him at a distance. After they have for a while gazed upon each other with mutual animosity, the boar again slowly proceeds on his course, and the dogs renew their pursuit. In this manner the charge is sustained, and the chase is continued till the boar is quite tired, and refuses to go any farther. The dogs then attempt to close in upon him from behind: those which are young, fierce, and unaccustomed to the chase, are generally the foremost, and often lose their lives by their ardour. Those which are older and better trained are content to wait until the hunters come up, who strike at him with their spears, and, after several blows, dispatch or disable him.

The putting collars with bells about the dogs' necks is a great security for them, as the boar will not then so soon strike at, but will rather run before, them. The modern practice of boar-hunting is generally to dispatch the creature by all the huntsmen striking him at once; but the ancient Roman way was, for a person on foot, armed with a spear, to keep him at bay; and in this case the boar would run of himself upon the spear to get at the huntsman, and push forward till the spear pierced him through.

THE COMMON HOG.

The Common Hog, in a tame state, is almost universal, except in the frigid zones of Kamtschatka, and such places where the cold is very severe. Since its introduction into

America by the Europeans, it abounds to excess in the hot and temperate parts.

In the forests of South America there are vast droves, which derive their origin from the European kind, relapsed into a state of nature. Hogs seem to enjoy few of the powers of sensation in great perfection; and their feeling is so imperfect, that they will suffer mice to burrow in the fat of their backs without betraying much uneasiness, or even appearing to notice it. They are said to hear distant sounds, and the wild hog distinguishes the scent of the hunter and his dogs at a great distance. In their taste they shew a singular degree of caprice; and in the choice of herbs they are more delicate than any other herbivorous animal, yet devour with voracity the most nauseous and putrid carrion; nay, are so brutal at times that they do not scruple to eat their own offspring: even infants have been seized and mangled by them to gratify their desperate and voracious appetite, for they seem possessed only of an insatiable desire of eating. Yet we ought to consider that with us the hog is in an unnatural state, and that it is often compelled to feed in this filthy manner from want of a sufficiency of those proper aliments which it finds in the forests and woods. The indelicacy of this animal may therefore have arisen more from the neglect it experiences so frequently in its domestic state than from its nature. This is certain, that its palate is highly sensible to the difference of eatables; for, where it finds abundance and variety, it will reject the worst with as distinguishing a taste as any other quadruped. In the orchards of peach-trees in North America, the hog is observed to reject the fruit which has lain a few hours on the ground, and will continue to watch whole hours together for a fresh windfall.

The form of the hog is inelegant, and his carriage and manners are equally mean. His unwieldy shape renders him no less incapable of swiftness and sprightliness than of gracefulness of motion. He is by nature stupid, inactive,

and drowsy, and, if undisturbed, would sleep half his time; but he is frequently awakened by the calls of appetite, which, when he has satisfied, he goes to rest again. His whole life is thus a round of sleep and gluttony; and, if supplied with sufficient food, he soon grows an incumbrance to himself: his flesh becomes a greater load than his legs are able to support, and he continues to feed lying down or kneeling—a striking example of indulged sensuality.

For about six weeks from the end of September the produce of the oak and the beech affords a luxurious banquet to hogs which are kept in situations where those trees abound; and large herds of these obstinate brutes are reduced to perfect obedience and good government whilst feeding on them by the most simple means, which, as pursued in the New Forest, are thus detailed by Mr. Gilpin, in his *Forest Scenery*, vol. ii. p. 113.

"The first step the swine-herd takes is to investigate some close, sheltered part of the forest, where there is a conveniency of water, and plenty of oak or beech-mast — the former of which he prefers when he can have it in abundance. He fixes next on some spreading tree, round the bole of which he wattles a slight circular fence, of the dimensions he wants; and, covering it roughly with boughs and sods, he fills it plentifully with straw or fern. Having made this preparation, he collects his colony among the farmers, with whom he commonly agrees for a shilling a-head, and will get together perhaps a herd of five or six hundred hogs. Having driven them to their destined habitation, he gives them a plentiful supper of acorns or beech-mast, which he had already provided, sounding his horn during the repast. He then turns them into the litter, where, after a long journey and a hearty meal, they sleep deliciously. The next morning he lets them look a little around them — shews them the pool or stream, where they may occasionally drink—leaves them to pick up the offals of last night's meal—and, as evening draws on, gives them another plentiful repast under the neighbouring

trees, which rain acorns upon them, for an hour together, to the sound of his horn. He then sends them again to sleep. The following day he is, perhaps, at the pains of procuring them another meal, with music playing as usual. He then leaves them a little more to themselves, having an eye, however, on their evening hours; but, as their bellies are full, they seldom wander far from home, retiring commonly very early and orderly to bed. After this he throws his sty open, and leaves them to cater for themselves; and from henceforward has little more trouble with them during the whole time of their migration. Now and then in calm weather when mast falls sparingly, he calls them perhaps together by the music of his horn to a gratuitous meal; but in general they need little attention, returning regularly home at night, though they often wander in the day two or three miles from their sty. There are experienced leaders in all herds which have spent this roving life before, and can instruct their juniors in the method of it. By this management the herd is carried home to their respective owners in such condition that a little dry meat will soon fatten them."

An approaching storm seems to affect the feelings of the hog in a very singular manner. On such occasions he runs about with straw in his mouth in a frantic state, and uttering loud cries. Nor is he less agitated when he hears any of his kind in distress: when a hog is caught in a gate, as is often the case, or when it suffers any of the usual operations of ringing or spaying, all the rest are then seen to gather round it to lend their fruitless assistance, and apparently to sympathise with its sufferings. They have been known to gather round a dog that has teased them, and kill him on the spot. The hog is remarkable for the smallness of his eyes: hence a person whose eyes are diminutive is said to be pig-eyed. The hog delights to bask in the sun, and to wallow in the mire. Tame hogs are often very troublesome in cultivated grounds, ploughing them up with their snouts,

and thus entirely frustrating the labours of the husbandman.* Worms, the wild carrot, and other roots, are the objects of its search; but the inhabitants of America find the hog very beneficial in clearing the country of rattlesnakes, and other serpents, which it devours with safety. The sow brings forth in the beginning of the fifth month after conception, and she has usually two, and sometimes three litters in a year. Her progeny is generally very numerous, frequently thirteen or fourteen, and sometimes twenty, at a birth; yet she can bring up no more than she has teats to suckle with. Her first litter is commonly less numerous than those that follow; and the smaller kinds of the hog species are more prolific than the larger sorts.

Hogs, when suffered to exist the natural term of their life, live from fifteen to thirty years. Their size and strength continue to improve till they are five or six years old. They are infested with lice, and are subject to many disorders, most of which are considered to arise from intemperance.

Contemptible as the hog may appear, he is greatly beneficial to mankind. His flesh is pleasant, substantial, and nutritious, particularly to those who are employed in manual labour; and it affords several materials for the table of the epicure,—among which is brawn, which seems peculiar to England. Pork takes salt better than the flesh of any other animal, and always makes an important article in naval stores. The lard of the hog is used in various medical preparations, and is compounded by the perfumer into pomatum. The bristles are of great use to shoemakers, and are also

* The best method to prevent this evil is to cut the two strong tendons of their snouts with a sharp knife, about an inch and a half from the nose. This may be done with little pain, and no injury to the animal, when about two or three months old. The common practice of putting rings in their noses is very painful, and they must be replaced as often as they give way, which happens so frequently, that rings afford but little security.

made into brushes; and the skin is worked into coverings for pocket-books, and other articles.

In Minorca the hog is used as a beast of draught. A sow, a cow, and two young horses, have been seen in that island yoked together; and of the four, the sow appeared to draw the best. The hog and the ass are there frequently yoked together to plough the ground, and the former has been applied to the same purpose in our own island, viz. in that part of Murray which lies between the Spey and Elgin.

In some parts of Italy swine are employed in hunting for truffles, which grow some inches under ground. One of these animals being driven into the pastures, we are told that, wherever he stops and begins to root with his nose, truffles are always to be found.

The accounts of the various "*learned pigs*" leave little room for doubting the sagacity of some of the species. Perhaps the most surprising instance of this kind is related in the *Memoirs of British Quadrupeds*. It is there stated, that a gamekeeper of the late Sir H. P. St. John Mildmay actually broke in a black New Forest sow to find game, and to back and stand, nearly the same as a pointer. When she came on the cold scent of game she slackened her trot, gradually dropped her ears and tail till she was certain, and she then fell down on her knees. So stanch was this animal, that she would frequently remain five minutes and upwards on her point. As soon as the game rose she always returned to Toomer, the keeper, grunting for a reward, which consisted of a sort of pudding, made of barley meal, and with which he was always provided for this purpose. Sir H. Mildmay occasionally used this animal for the amusement of his friends. In doing this a fowl was put into a cabbage net, and hidden among the fern in some part of the park; and this extraordinary sow never failed to point it in the manner above described.

The varieties of hog cultivated in Great Britain are partly the result of climate and keep in the European variety, and

partly the effects of crossing with the Chinese. At the same time, it is only in particular districts that so much attention has been paid to this animal as to give rise to any accurate distinction of breeds—the most remarkable of which we shall notice before we describe the foreign varieties. Some races can with difficulty be made fat, though fed from the trough, while others thrive on what would scarcely afford subsistence to any other quadruped. Donaldson remarks, that the BERKSHIRE and HAMPSHIRE hogs are of the largest class. The former are now spread through almost every part of England, and many parts of Scotland. They are in general of a reddish colour, or tawny white, spotted with black; large ears hanging over the eyes; a thick, close, and well-made body; legs short, small in the bone, having a disposition to fatten quickly, and, when well fed, the flesh is fine and good either for pork or bacon.

This kind of hog is supposed by many to be the most hardy, both in respect to their nature and the food on which they are fed. Culley gives an account of one of this kind that was killed at Congleton, in Cheshire, which measured, from the nose to the end of the tail, nine feet eight inches; its height was four feet and a half; and weighed, after it was killed, eighty-six stone eleven pounds, avoirdupoise.

The ESSEX BREED have long, sharp heads; are up-eared; bodies flat, long, and generally high on the legs; are roach-backed, small boned, white, or black and white: they are bare of hair, very great eaters, and unquiet in their temper.

There is a small English breed, found in many parts of the country, very hardy, and well disposed to fatten. It is of a white colour, short in the legs, head and neck well formed, and the ears slouching a little downwards. It is thick, well made, and compact in the body. It is chiefly found in the north.

The SWING-TAILED BREED is a small class of hogs, very hardy, and of great weight in proportion to their size.

The HAMPSHIRE BREED, according to Lawrence, re-

sembles those of Essex, but they have the ears more pointed, the head longer and sharper, and differ from those of Berkshire, in being generally dark-spotted, some black, and in being of a longer and flatter form; but they are not so compact. They are, however, usually of a white or speckled colour, easy to be fattened; and their weight may be greatly increased by judicious management and proper food. They have long necks and body, and are altogether a fine large breed.

The SHROPSHIRE is another very valuable breed of hogs, and are particularly so where they have sufficient food. They are large, and the standard colour is white or brindled. Great numbers are bred in Shropshire for the London feeders and the Essex farmers, who feed them on clover. In form they do not equal the Berkshire breed, nor are they so easily to be fattened, or maintained on such cheap food.

The GLOUCESTERSHIRE BREED is not to be compared with those of Berkshire, Hampshire, or Shropshire; for, notwithstanding it is large, yet it is by no means so finely formed, being tall and long in shape; and there are two wattles hanging from the throat.

The HEREFORDSHIRE BREED possesses no advantage over any of the preceding, but it is large and useful.

The RUDGWICK BREED, according to the author of the *Survey of Middlesex*, is the largest breed of swine in the island, and is found in the village of Rudgwick, on the borders of the counties of Surry and Sussex. From their feeding to an extraordinary size, their weight at the age of two years is generally double or triple that of other hogs at the same period.

The LARGE-SPOTTED WOBURN BREED, which was introduced by the late Duke of Bedford, is remarkably prolific and well formed, and soon arrives at a great weight.

The LEICESTERSHIRE BREED is a large, flat, and deep-sided, light-spotted animal, with somewhat handsome head and ear. The Bakewell variety has been much esteemed.

The Norfolk Breed is a short, small, up-eared, porking variety; the colour varies, being sometimes white, bluish, striated, and in general is considered an inferior kind of swine. They are thin-skinned, and quick proving; and it would be much to the interest of the feeders of this country were they to improve the breed, especially in the vicinity of Lynn, and on the Lincoln side of the county, where there is a very fine variety, which is large, spotted, and of an excellent form and quality.

The County of Suffolk has long enjoyed the reputation of breeding a small but delicate white pig; and not only do they bear the palm in their own county, but find many advocates out of it. In general they are shorter, and more pug-formed than the Norfolk breed; and, from their dish-face and pendent belly, many have supposed it to have been descended from the white Chinese. The principal defects in this breed are, that they are great consumers in proportion to their small dimensions, and that they produce but little flesh; yet some of them are to be considered as handsome and regularly shaped.

The Wiltshire variety is long in the body, low in stature, hollow about the shoulder, has middling, large-pointed ears, is high on the rump, round bone, and light in colour.

The Yorkshire Old Breed may be justly considered as the worst of our large species. The constitution is not the soundest, the legs are long, but the loins are weak. They form bad sty-pigs for the winter, but feed much quicker than many of the superior breeds. They have lately been crossed with the Berkshire variety, and consequently been much improved; but are not to be compared with the north-western stock, to which they are inferior, and render a less price in the market.

There are a great number of varieties and sub-varieties found in England, which it is unnecessary for us to mention.

The Highland Breeds.—Dr. Walker is of opinion that of the Highland breeds those of the Hebrides are the original, and are of the smallest size, being neither white nor yellow, but of a uniform greyish hue, with shaggy, long hair and bristles. Their sole food is roots and herbage; and they subsist on these the whole year round, grazing on the hills like sheep, without shelter, and receive no other sustenance. They are in the best condition during the autumn, and afford excellent meat, without artificial food; but when driven down into the low parts of the country, they readily fatten, and soon attain considerable size.* They are generally of a dark red, or nearly black colour, in the Orkneys, and have long bristles, with a kind of coarse wool beneath.

The Old Irish Breed.—This is a very inferior and unprofitable breed, inasmuch as they are long-legged, lank, thin-sided, and a haggard sort of swine; but they have considerably improved since they have been crossed with those of Berkshire.

The Chinese kind, in its wild state, is found in great numbers in New Guinea, and in the islands of that country: they are also found on the island of Gilola, and they resort eagerly to the places where *sago* trees have recently been cut down, to feed on the pith, and are said to appear, with their little black pigs, like so many flies on a table. The New Hebrides, the Marquesas, the Friendly, and the Society Islands, possess this animal,—the natives of which cultivate it with great care, it being almost the only domestic animal they can boast of. The Chinese hog is distinguished by having the upper part of its body almost bare, its belly hanging nearly to the ground, its legs very short, and its tail still more proportionately short. The flesh of this variety is particularly white and delicate; but a continued attention to improvement has newly modelled the Chinese breed in this country to what is considered to be nearer perfection;

* Walker's Hist. of the Hebrides, vol. ii. p. 17.

and from one of this kind our figure of "*the Chinese sow*" was taken.

According to Culley, the Chinese breed has been subdivided into seven varieties or more; but such an affectation of accuracy is as useless as it would be tedious.

THE AFRICAN WILD BOAR.

Sus Æthiopicus. Linn. *Sanglier du Cap Verd.* Buff.

The skin of this animal is of a dusky hue; the bristles thinly dispersed over the body, longest between the ears, and on the beginning of the back. As a singular mark of this species it has *no fore teeth*, their place being occupied by very hard gums.

The African or Æthiopian hog is nearly five feet in length, and two and a half in height; the body is thick, the head very large and broad; the snout is also broad, and almost of a horny hardness. The mouth is narrow, and furnished with two small tusks in the lower jaw, and two in the upper. The latter are nine inches in length, and measure five inches round at the base: these turn *upwards* like a horn, in the form of a semicircle, and are used as dreadful instruments of the animal's power. Beneath each eye is a hollow, formed of loose skin, very soft and wrinkled; under these a great lobe or wattle, lying almost horizontally, broad, flat, and rounded at the end, placed so as to intercept the view of any thing immediately beneath it. The ears are rather large, and sharp-pointed, lined on the inside with long whitish hairs; its tail, which is slender and flat, is always held erect when the creature is pursued. This animal inhabits the hottest parts of Africa, from Sierra Leone to Congo, and to within about two hundred leagues of the Cape. It lives under ground, and burrows as expeditiously as a mole, forming almost instantaneously a great hole in the ground by means of its callous snout. This fact was demonstrated some

Pl.32.

R. Sands. fc. THE AFRICAN WILD BOAR. R. Sands. Junr. del.

J. Le Keux. ic. THE PECCARY. R. Sands. Junr. del.

R. Sands. fc. R. Sands. Junr. del.

THE BABIROUSSA.

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years ago by one which was kept in the Prince of Orange's Menagerie at the Hague. We know very little of the manners of these creatures; but they are represented as being very fierce and swift, and as dangerous to attack as the lion; for, though much smaller, they will rush upon a man, strike him down, and, almost at the same instant, rip up his belly. The savage nature of that at the Hague proved fatal to its keeper, by inflicting a dreadful wound in his thigh, of which the poor man died; and the natives rarely venture to attack them in their holes, as they are well acquainted with the danger of their rushing out unawares. The flesh is good, and very much resembles that of the common hog; and it is not unusual to see them, when pursued with their young ones, take them up in their mouths and run away with them.

The Cape Hog is found in abundance between Cape de Verde and the Cape of Good Hope: it is of a superior size, and peculiar to Africa. The head is long, the snout slender, tusks large; those in the upper jaw thick, and truncated obliquely; *two* fore teeth in the upper jaw, and twelve grinding teeth in both the upper and under jaw; the ears are erect, narrow, and pointed; the tail is slender, and terminates in a tuft. This species has sometimes been confounded with the last described; but the form of the head, and the structure of the mouth, and the manner in which the body is covered all over with long, fine bristles, establish a sufficient specific difference.

THE PECCARY.

Sus Tajacu. Linn. *Mexican Hog.* Penn.

The Indian name of this species is Paquiras, from which seems to be derived the name of Peccary. It inhabits the hottest parts of South America, and some of the Antilles, living in the forest, and on the mountains, in herds of two or

three hundred. It will fight courageously with beasts of prey. The jaguar is its mortal enemy, and frequently loses its life in engaging a number of these animals, which assist each other, and surround their enemies. M. de la Borde relates, that, being one day engaged with some others in hunting a drove of peccaries, they were surrounded by them, and obliged to take refuge upon a piece of rock; and, notwithstanding they kept up a constant fire among them, the creatures did not retire till a great number of them were killed.

They feed chiefly on fruits, roots, and seeds: they likewise eat toads, lizards, and serpents, holding them with great dexterity between their fore feet, and taking off their skins with their teeth. In appearance the peccary resembles the hog; but the body is covered with bristles stronger than those of the European kind, and more like those of the hedgehog. Those on the top of the neck and back are nearly five inches long; but the belly is almost naked. From the shoulders to the breast is a band of white. Instead of a tail it has a small fleshy protuberance, which scarcely covers its posteriors On the lower part of the back is a gland, open at the top, from which is discharged a thin ichorous liquor, of a most fœtid smell. If not cut off immediately after the animal is killed, this gland would, in the space of half an hour, render the flesh unfit for human food.

Although the European hog is common in America, and in many parts has become wild, yet the peccary has never been known to breed with it; notwithstanding, they are frequently seen together, and feed in the same woods. Like the hog the peccary is very prolific, and when taken young is easily tamed.

THE GUINEA HOG

(*Sus Porcus.* Linn. *Le Cochon de Guinée.* Buff.)

Inhabits Guinea, is smaller, and the head more slender than that of the common hog, with sharp-pointed ears; the body covered with short, red, shining hairs, but about the neck and lower part of the back a little longer. It has no bristles, and the tail, which is without hairs, reaches nearly to the ground.

The Siam Hog is another variety, very little differing from the former.

THE BABIROUSSA.

Sus Babyrussa. Linn. *Le Babiroussa.* Buff.

This is a gregarious animal, and is found in large herds in many parts of Java, Amboyna, and Buero, but is not found either on the continent of Asia or Africa. Though classed by naturalists with the hog kind, yet it differs from animals of that species in many particulars. Instead of bristles it is covered with short, fine, and somewhat woolly hair, of a deep brown, or blackish colour. It is also distinguished by the very *extraordinary position and form* of the *upper* tusks, which are placed upon the *external* surface of the upper jaw, perforating the skin of the snout, and turning upwards towards the forehead, being twelve inches in length, of a fine hard grain, like that of ivory, and, as the animal advances in age, becoming so extremely long and curved as to touch the forehead; the tusks in the lower jaw are formed as in the rest of the hog genus.

The babiroussa is nearly the size of a common hog, but of a somewhat longer form, and with more slender limbs; the eyes are rather small; the ears pointed, and somewhat erect; the tail long, slender, and tufted at the end with long hairs. The voice of this creature is said to resemble that of the com-

mon hog; but it sometimes utters also a loud, growling note. When sleeping or resting, they are said to hook or support themselves by placing the upper tusks over the lower branches of the trees. When closely pursued, it plunges into the sea, dives and swims from one island to another with great facility, and thus frequently escapes from its pursuers: but when any number of them are together, their odour is so strong that the dogs can readily scent them at a great distance. They are easily tamed, and their food is the leaves of trees and other vegetables: their flesh is well tasted.

THE ONE-HORNED RHINOCEROS

(*Rhinoceros Unicornis.* Linn. *Rhinoceros.* Buff.)

Inhabits Bengal, Siam, Cochin-China, Quangsi in China, and the isles of Java and Sumatra, and the country as low as the Cape of Good Hope; but in general the species is not numerous, and is much less diffused than the elephant. The single horn of this animal, which marks its species, is placed near the end of the nose, and is sometimes three feet and a half long, black, smooth, and solid; the head is large, the ears long and erect, and its eyes small, sunk, and without vivacity. The under lip is like that of an ox, but the upper more like that of a horse; and the rhinoceros uses it as that creature does, to gather up hay from the rack, or grass from the ground; but with this superior advantage, that he has the power of extending the lip to six or seven inches in length from the nose; and it is so pliable that he can move it from side to side, grasp a stick with it, or any small substance, and hold it extremely fast. The nostrils are situated very low, in the same direction with the opening of the mouth, and not more than an inch from it. The length of the rhinoceros, from the extremity of the muzzle to the insertion of the tail, is usually twelve feet, and the circumference of the body nearly equal to its length. The

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skin, which is of a blackish colour, forms itself into large folds at the neck and the crupper, by which the motion of the head and limbs are facilitated. There is also a large fold from the shoulders, which hangs down to the fore legs, and another from the hind part of the back to the thighs. The skin is thick, and seems almost impenetrable, insomuch that it will turn or break the edge of a scimitar, and resist a musket-ball; and it feels like a piece of board half an inch thick. The body is everywhere covered with tuberosities or knots, which are small on the neck and back, but larger on the sides. The thighs, legs, and even the feet, are full of these incrustations, which have been mistaken by some authors for scales; between the folds the skin is penetrable, as soft to the touch as silk, and of a light flesh colour,—as is also the skin of the belly. The body of the rhinoceros is thick, as well as long; its belly is large, and hangs nearly to the ground; the legs are short, round, and very strong; and the hoofs are divided into three parts, each pointing forward; the tail is slender, flatted at the end, and covered on the sides with very stiff, thick, black hairs. The tongue of the rhinoceros has been represented by some authors as being so extremely rough, that, when he has thrown a man down, he can lick the flesh from the bones; but this is quite erroneous, the tongue being quite smooth. The rhinoceros has four cutting teeth, one on each corner of the jaw, and six grinders in each, the first remote from the cutting teeth.

Those animals of this species which have been brought to England have been young and small. Bonticis says, that in respect to bulk of body the rhinoceros equals the elephant. Without being carnivorous, or even extremely wild, the rhinoceros is quite untractable. It seems to be subject to paroxysms of fury, which nothing can appease. That which Emanuel, king of Portugal, sent to the Pope, in the year 1513, destroyed the vessel in which they were transporting it; and it is said that the tiger will rather

attack the elephant than the rhinoceros. He is a solitary animal, loves shady forests, moist and marshy grounds, and seldom quits the banks of rivers. Like the hog, he is fond of wallowing in the mire, and is said by that means to give shelter in the folds of his skin to scorpions, centipedes, and other insects. He is dull of sight, but has a most exquisite scent, and feeds on vegetables, particularly shrubs, broom, and thistles. He grunts like a hog, and is said to consort with the tiger; but the latter report is fabulous, and has arisen from the circumstance of their common attachment to the sides of rivers, and consequently being frequently found together. From the peculiar construction of the eyes of the rhinoceros, he can only see what is immediately before him; consequently, when he pursues any object, he usually proceeds in a direct line, overturning every obstruction. With the horn on his nose, he tears up trees, raises stones, and throws them behind him to a considerable distance. His sense of hearing is as acute as his smell; and he will listen with a deep and long-continued attention to any kind of noise until it ceases. The female produces but one at a time, at considerable intervals, and is very solicitous about her young, which, during the first month, does not exceed the size of a large dog.

The flesh of the rhinoceros is eaten, and considered excellent food by the natives of India and Africa; and, in the former country, the skin, hoofs, teeth, and dung, are used medicinally. The horns are in great repute as an antidote against poison, especially those of the virgin female, called abadda,—cups made of which are said to communicate their virtue to the liquor poured into them. The rhinoceros is the *unicorn* of Scripture, and possesses all the properties ascribed to that animal,—rage, untameableness, great swiftness, and immense strength.

A rhinoceros was found buried entire in a bank of a river in Siberia, in the ancient frozen soil, with the skin, tendons, and some of the flesh, in the highest preservation.

This fact is not only given on the best authority,* but, as an evidence, the complete head is now preserved in the Museum at St. Petersburg. The body was discovered in 1772, in the sandy banks of the river Witim.

THE TWO-HORNED RHINOCEROS.

Rhinoceros Bicornis. Linn.

Of this species, which inhabits Africa only, the flesh resembles that of a hog, and the viscera those of a horse. It has no gall-bladder, and no fore teeth; the skin has but few folds, is much granulated or warty, and of a deep ashen gray; between the legs it is smooth, and flesh-coloured; on the other parts there are a few bristles, but they are most numerous about the ears and end of the tail. The latter is flattened on the sides, the feet are round, and do not spread much, and there are three hoofs on each of them, which project but little, the middle one being the longest. This species of the rhinoceros has two horns, placed one behind the other in a line with the nose; the foremost of them measures about a foot and a half in length, and is always the largest of the two. They are of a conical shape, and the tips incline a little backward: the lower parts are rough, and seem as if composed of thorny fibres; the upper parts are plain and smooth, like those of an ox. It is remarkable that this animal makes use of the shorter horn only for the purpose of digging up roots, of which its food chiefly consists, being endued with the power of turning the larger horn on one side out of the way. The eyes are small, and sunk into its head, consequently it sees indistinctly. But its organs of hearing and smelling are very acute, so that the least noise or scent puts it in motion. It instantly runs to the spot from which the alarm proceeds, and whatsoever it meets with in its course it overturns and tramples upon. Men, oxen, and

* Dr. Pallas, Nov. Com. Petrop. xvii. 585, tab. xv.

even waggons, have thus been overturned and destroyed; but it never stays or returns to renew the charge, and the mischief it does is more the effect of a senseless impulse than of rage.

Mr. Sparmann, a learned Swede, shot two of these animals; one of which was so large that the united efforts of five men were insufficient to turn it. On measuring the lesser he found its length to be eleven feet and a half, the height seven feet, and the circumference twelve.

This species seems to agree in its habits with the preceding. Its flesh is eatable, and tastes like pork, but is very full of sinews. Its food is boughs of trees, which it bites into pieces of the size of a finger. It feeds much also on succulent plants, especially the stinking *stapelia*. Cups are made of the horns, and whips of the hide; but the skin of this rhinoceros is not so hard or impenetrable as that of the former species. In his wild state he is often slain by javelins thrown by the hand, which sometimes enter his body to a considerable depth; and the inhabitants of Shangalla kill these animals with the clumsiest arrows that ever were used.

This kind of rhinoceros, though large, fierce, and strong, is nevertheless subject to great torment from an apparently contemptible adversary. This is a fly (probably of the Linnæan genus *œstrus*) which is bred in the black earth of the marshes in Abyssinia, and which persecutes the rhinoceros so unremittingly, that it would subdue him in a short time, but for a stratagem which he practises for his defence. In the night, when the fly is at rest, the huge animal selects a convenient place, where, rolling in the mud, he clothes himself in a kind of case, which defends him against his adversary the following day. The granulations of his skin serve to keep the muddy plaster firm upon every part of his body except the hips, shoulders, and legs, where, from his motion, it cracks and falls off; thus leaving him partially exposed to the attacks of the fly. The voice of the rhinoceros is only a sort of snorting, which is exerted by the

females when anxious for their young. They pay great regard to cleanliness, dropping their dung and urine only in particular places; and the former is like that of horses.

Bruce's description of the manner of feeding, as well as of some other particulars relative to the two-horned rhinoceros, seems highly worthy of notice. He informs us, that, "besides the trees capable of most resistance, there are, in the vast forests within the rains, trees of a softer consistence, and of a very succulent quality, which seem to be destined for his principal food. For the purpose of gaining the highest branches of these, his upper lip is capable of being lengthened out, so as to increase his power of laying hold with this, in the same manner as the elephant does with his trunk. With this lip, and the assistance of his tongue, he pulls down the upper branches which have the most leaves, and these he devours first. Having stripped the tree of its branches, he does not abandon it; but, placing his snout as low in the trunk as he finds his horns will enter, he rips up the body of the tree, and reduces it to thin pieces, like so many laths; and when he has thus prepared it, he embraces as much of it as he can in his monstrous jaws, and twists it round with as much ease as an ox would do a root of celery, or any such pot-herb or garden-stuff.

"When pursued and in fear, he possesses an astonishing degree of swiftness, considering his size, the apparent unwieldiness of his body, his great weight before, and the shortness of his legs. He is long, and has a kind of trot, which, after a few minutes, increases in great proportion, and takes in a great distance; but this is to be understood with a degree of moderation. It is not true, that in a plain he beats the horse in swiftness. I have passed him with ease, and seen many worse mounted do the same; and though it is certainly true that a horse can seldom come up with him, yet this is owing to his cunning, but not his swiftness. He makes constantly from wood to wood, and forces himself into the thickest part of them. The trees that are dry are

broken down, like as with a cannon shot, and fall behind him, and on his side in all directions. Others that are more pliable, greener, and fuller of sap, are bent back by his weight, and the velocity of his motions; and, after he has passed, restoring themselves like a green branch to their natural position, they sweep the incautious pursuer and his horse from the ground, and dash them to pieces against the surrounding trees.

"The eyes of the rhinoceros being very small, he seldom turns his head, and therefore sees nothing but what is before him. To this he owes his death, and never escapes, if there is so much plain as to enable the horse to get before him. His pride and fury then make him lay aside all thoughts of escaping, but by victory over his enemy. He stands for a moment at bay; then, at a start, runs straight forward at the horse, like the wild boar, whom, in his manner of action, he very much resembles. The horse easily avoids him by turning short to a side; and this is the fatal instant: the naked man, with the sword, drops from behind the principal horseman, and, unseen by the rhinoceros, who is seeking his enemy, the horse, he gives him a stroke across the tendon of the heel, which renders him incapable of further flight or resistance.

"In speaking of the great quantity of food necessary to support this enormous mass, we must likewise consider the vast quantity of water which he needs. No country but that of the Shangalla, which he possesses, deluged with six months rain, and full of large deep basins, made in the living rock, and shaded by dark woods from evaporation, or watered by large and deep rivers, which never fall low, or to a state of dryness, can supply the vast draughts of this monstrous creature. But it is not for drinking alone that he frequents wet and marshy places: large, fierce, and strong as he is, he must submit to prepare himself against the weakest of all his adversaries. The great consumption he constantly makes of food and water necessarily confine him to certain limited

Pl 34.

R. Sands del et fc.

THE HIPPOPOTAMUS.

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THE LONG NOSED TAPIR.

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spaces, for it is not every place that can maintain him. He cannot emigrate, or seek his defence among the sands of Atbara."

The rhinoceros with two horns was the species described by Martial under the name of *rhinoceros cornu gemino,* who relates its combat with the bear. The Romans, who procured their rhinoceri from Africa, represent them with double horns. That figured in the Prænestine pavement, and that on a coin of Domitian, has two horns. Augustus introduced a rhinoceros (probably of this kind) into the shows, on occasion of his triumph over Cleopatra.

THE HIPPOPOTAMUS.

Hippopotamus Amphibius. Linn. *L'Hippopotame.* Buff.

The hippopotamus is a quadruped as large, and not less formidable than the rhinoceros. Whether there may exist more than one species of this genus appears uncertain; for there is every reason to apprehend that the morse has sometimes been confounded by travellers with the true hippopotamus. Sonnini's observations seem in favour of the existence of more than one kind; yet his conclusions are not apparently founded on better authority than the discordance of naturalists. Those who apprehend there are two species consider one as an inhabitant of the fresh water, or rather of inland lakes, rivers, and marshes; and the other to be entirely confined to the sea. The latter, therefore, is probably the morse.

Although zoologists are acquainted with only *one* living species of the hippopotamus, yet late observations have proved that the bowels of the earth contain the *fossil* remains of *two* perfectly distinct species — one of which appears not to differ in any respect from the one still existing — the other being, as it were, a miniature copy of the larger, not exceeding in size the wild boar.

The hippopotamus has four cutting teeth in each jaw: those in the lower jaw straight and pointing forward, almost horizontally, the two middle ones being the longest; and has four tusks — those in the upper jaw short, in the lower very long, and truncated obliquely. These are so strong and hard that they will strike fire with steel, are sometimes two feet in length, and weigh upwards of six pounds each. Indeed, the armament of teeth in his mouth is truly formidable; and it is certain that dentists prefer them for making false teeth, as they are less liable to turn yellow.

Authors vary considerably in describing the size of this animal; and we have had but few opportunities in Europe of examining this huge creature minutely. The length of a male hippopotamus has been known to be seventeen feet, the height seven, and the circumference fifteen; the head three feet and a half, and the girt nine; the mouth in width about two feet; the ears small and pointed, lined within very thickly with fine short hairs; the eyes and nostrils small; the lips very thick, broad, and beset with a few scattered tufts of short bristles. The whole surface of the body is covered with short hair, very thin on the under parts: the tail is short, not exceeding a foot in length, slightly compressed, and almost naked, and marked by several strong circular wrinkles; the feet are large, divided into four parts, each being furnished with a hoof, — but notwithstanding the animal is amphibious, they are unconnected by any membrane or web. The hide is thicker even than that of the rhinoceros, and of a dusky colour, but penetrable by a musket shot. It is asserted by Hasselquist, that the hide alone is a load for a camel.

These animals inhabit the warmer parts of the globe; and are still found in the Nile, where it flows through the fens of Upper Egypt, below which they are seldom seen. It abounds most in the rivers among the woods of Ethiopia, and in those of Africa, as the Gambia, Senegal, Zaira, &c. residing equally in rivers near their fall into the sea, and in

the inland lakes, from the very interior of Africa to the Cape of Good Hope. Formerly they abounded near the Cape, but are now nearly extirpated. To preserve the few remaining in Berg river, the Dutch government have prohibited the shooting them without express permission. By writers of antiquity, the hippopotamus is described as possessing the most astonishing powers of strength; they even feigned that it vomited fire. Among the ancient Egyptians it was revered as a tutelary divinity; they paid it sacred honours, and engraved its image on their obelisks. But, if we may credit Diodorus Siculus, they would sometimes wage war against this object of their adoration, attacking it with spears and daggers, and, after inflicting many desperate wounds, leave the poor animal to expire from loss of blood. The negroes of Congo, Angola, Elmina, and other adjacent parts of Africa, at this day, regard the hippopotamus as a deity; yet they not only attack and destroy it, but devour its flesh with great avidity. Pliny relates that Scaurus, during his ædileship, exhibited before the Romans five crocodiles and one hippopotamus in a temporary lake prepared for the occasion. Augustus also produced one on his triumph over Cleopatra; and after this, the figure of the hippopotamus appears on various medals of the Roman emperors: yet, for many ages, no authentic history of this animal was obtained; and most commentators conceive it to be the *behemoth* of Job, who admirably describes its manners, food, and haunts.

The great strength of this creature would render it one of the most formidable of terrestrial quadrupeds were its disposition ferocious; but it is mild and gentle, except under circumstances of great irritation, and then its power is to be dreaded. Their mildness is confirmed by Belon, who assures us, that, when young, they are easily tamed: he saw one kept in a stable, which shewed no inclination to escape, or do any kind of mischief, even when, as sometimes happened, he was released from his confinement.

Owing to the unwieldiness of his body, and the shortness

of his legs, the hippopotamus is not able to move very swiftly upon land, and he then becomes timid; his pace, however, is quicker on land than is generally imagined. When pursued, he takes to the water, plunging in head-foremost, sinks to the bottom, and is seen walking there at perfect ease, or swimming with equal facility, the vast size of his belly rendering his specific gravity nearly equal to that of water. He cannot, however, continue long below, without rising to the surface to breathe: in the day-time he is so fearful of being discovered, that he scarcely ventures to put his nose out of water, unless among the reeds, and then his breathing place is hardly perceptible; but if he be attacked on land, and finds himself incapable of vengeance, he immediately returns to the river, where he plunges in, and, after a short time, rises to the surface, loudly bellowing, apparently to intimidate his pursuer; if wounded, he will rise, and attack boats or canoes with great fury, and often sink them by biting large pieces out of their sides; and thus persons are frequently drowned by them, for they are as bold in the water as they are timid upon land. Although the negroes will venture to attack the shark, or even the crocodile, in their natural element, and there destroy them, they are too well apprised of the power of the hippopotamus; this animal, therefore, continues the uncontrolled master of the river, and all others fly from its approach, or become an easy prey to it. In shallow rivers it makes deep holes in the bottom, in order to conceal its great bulk. When it quits the water, it usually puts out half its body at once, and smells and looks around; but sometimes rushes out with great impetuosity, trampling down every thing in its way. It is hazardous to navigate canoes in rivers much infested by these animals, as the slightest movement of their bodies may easily overset them.

The manners of the hippopotamus approach nearer to those of the hog than of the horse, with which its name implies an affinity; for which reason Alpin calls them *chero-*

potami, or river hogs. They commonly sleep in the reedy islands in the middle of rivers, and, if possible, in situations surrounded by thick forests and deep impenetrable marshes, and in such places they bring forth their young.

The female is supposed to go with young nine months, produces but one at a birth, and that always upon land, but she suckles her offspring in the water. She is often seen in the rivers with her young one on her back; and her manner of suckling is not dissimilar to that of a cow, but the teats are small, and only two in number, being placed far back under the belly: the milk is thin, and more aqueous than that of the cow. The female, at particular seasons, has a strong smell of musk.

A herd of females is said to have but one male; two of the latter often contest, like the stag, each other's right over the females; and the attack of two such powerful animals, as may naturally be conceived, is truly terrible; the earth shakes beneath them, their blood flows in torrents, and the masses of flesh torn out by the grasp of their monstrous jaws, lie scattered upon the blood-stained scene of conflict. Sometimes the weakest, perceiving his efforts ineffectual, leaves his antagonist master of the field; but this seldom happens; and it frequently occurs that one or both of them perish on the spot.

The hippopotamus inhabits equally the land and the water; but his food is entirely of the vegetable kind, in quest of which he quits his watery residence, under the favourable darkness of the night, ranges along the banks and adjacent places in security, trampling down and destroying in his progress an infinitely greater portion of herbage than could possibly be required for the calls of his appetite. They thus sometimes quit the river in troops, going occasionally six miles from the banks, either in search of food, or of some other river, doing great damage to the sugar-canes and plantations of rice and millet, and among young and tender trees, the shoots of which they eagerly devour. The hippopotamus

feeds also on grass and the roots of trees, which he readily tears up with his teeth; but never eats fish, as has been erroneously stated by some naturalists.

The flesh of the hippopotamus is eaten in Africa by the poorer orders, who first separate it from the fat, or kind of fine lard with which the animal abounds, and which usually produces a good price. Dr. Pococke has seen their flesh sold in the shambles like beef. The gelatinous part of the feet is reckoned a great delicacy; and the tongue, when dried, is considered at the Cape as excellent food. The hide, which on the back is two inches thick or more, is converted by the Africans into shields or bucklers, and is said to be proof against a musket-ball. The Africans also consider the teeth of this animal to possess virtues which are antidotes to poison, and usually wear some trinkets made of them about their persons; and it is also asserted by Labat, that the blood is employed by the Indian painters in the preparation of their colours.

The modes of capturing these animals are various. In some parts the natives place boards full of sharp irons in the ground, which these heavy beasts striking into their feet, become disabled, and thus fall an easy prey. They are often shot, and sometimes taken in pit-falls prepared for this purpose on the banks of rivers; sometimes, too, they are struck in the water with harpoons fixed to cords; nor is it uncommon to see ten or a dozen canoes employed in the chase: this method is very common in Africa. Hasselquist says, the Egyptians destroy this animal by laying a large quantity of dry peas in the places he frequents; these he devours with avidity, which creates an insupportable thirst; he then returns immediately to the river, and drinks large draughts of water, on which the peas soon begin to swell; and not long after, the Egyptians find him dead on the shore, blown up, as if killed by the strongest poison.

THE LONG-NOSED TAPIIR

(*Hippopotamus Terrestris.* LINN. *Le Tapir.* BUFF.)

Is about the size of a small cow. The nose, which is long and slender, extends far beyond the lower jaw, forming a sort of proboscis, which it can extend or contract at pleasure. Each jaw is furnished with ten cutting teeth, and the same number of grinders: the ears are small and erect. The body of the tapiir is formed like that of the hog species, and covered with short hair of a dusky brown colour; the back is somewhat arched; legs short; and the hoofs, of which it has four upon each foot, are small, hollow, and black; the tail is very small. The tapiir is the hippopotamus of the New World, and has by some naturalists been mistaken for that animal. It inhabits the woods and rivers on the eastern side of South America, from the isthmus of Darien to the river Amazon. It sleeps during the day, in the darkest and thickest forests adjacent to the banks of rivers; and sallies forth at night in search of food, which consists of sugar-canes, grass, and fruits. It is a slow-footed and sluggish animal; and if disturbed, it plunges into the water, where it swims with great facility, or sinks below, and, like the hippopotamus, walks on the bottom as on dry ground. It makes a kind of hissing noise; is mild and inoffensive in its habits, avoiding all hostilities with other animals, fleeing at the smallest appearance of danger; but will make a vigorous resistance if attacked.

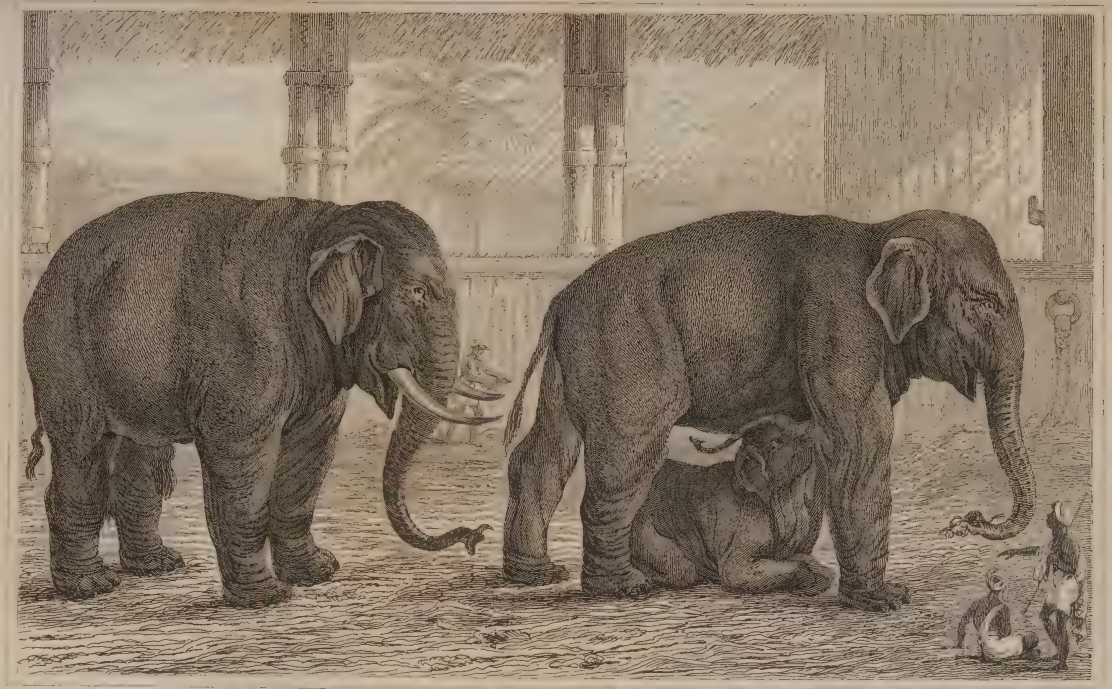
The skin of this creature is very thick, and when dried is so hard as to resist the force of an arrow; of this the Indians make bucklers; but the hide is soft, and capable of being penetrated when the animal is alive. The Indians shoot it with poisoned arrows, for the sake of its flesh, which is said to be very good food. The usual attitude which the tapiir adopts when at rest, is sitting on its rump, in the manner of a dog.

These animals are very common in Cayenne, where they are suffered to run about the streets, and are fed with cavassa-bread and fruit. M. Bajou, a surgeon attached to the government, had at this place a tapiir which became perfectly familiar, and acquired a strong attachment to him, distinguishing him in the midst of many other persons, licking his hands, and following him like a dog. This animal would often go alone into the woods to a great distance, but always returned to his home early in the evening. A female tapiir was exhibited at many of the fairs in Germany and Holland: the keeper usually fed it on rye-bread, a kind of gruel, and on different kinds of vegetables; it was excessively fond of apples, and could smell them at a considerable distance. If any person happened to have apples in his pockets, it would eagerly approach, and, thrusting in its proboscis, would take them out with great facility. It ate of almost every thing that was presented to it, whether fish, vegetables, or meat; and it never exerted its voice unless it was either fatigued or irritated.

THE ELEPHANT.

Elephas Maximus. LINN. *L'Eléphant.* BUFF.

All naturalists concur in giving the elephant the character of being the most sagacious animal next to man; yet were we to form our idea of his capacity from his outward appearance, we should be led to conceive very meanly of his abilities; for, at first view, the elephant presents the spectator with an enormous mass of flesh that seems scarcely animated: his huge body, covered with an apparently callous hide; his mishapen legs, that seem scarcely formed for motion; his small eyes, large ears, and long trunk,—all give him an air of stupidity. But our prejudices soon subside when we come to examine his history; and will serve to increase our surprise when we consider the various advantages it derives from so apparently clumsy a conformation.



Engraved by R. Sands. from a Drawing by R. Sands Junr. for the Illustrations of Natural History.

MALE AND FEMALE ELEPHANT, WITH HER YOUNG ONE SUCKING.

London. Published Jan.y 1st 1830. by J. Le Keux. Paxton Place & R. Sands. Brewer St.t

Linnæus was of opinion there was only one species of the elephant; but it appears, at present, there are sufficient reasons for believing that there are two, if not three, distinct species. It is a fact long since ascertained, from the structure of the grinders of the elephants brought to Europe for the sake of their ivory, that there must be *two* distinct animals, to which these teeth, so dissimilar to each other, belong; and whoever has bestowed the least attention on the stupendous remains of the animal called the mammoth, can on no rational ground dispute that there either does, or has existed a *third* kind of elephant, admitting the latter to be one. In the *Memoirs of the French National Institute* there appears a valuable paper on the subject of the two first by Cuvier; his remarks are the result of an examination of various specimens in the National Museum. This collection afforded him examples of the skulls of both species of the living elephants; and the difference of these is very remarkable. The two species are named by Cuvier, *Capensis* and *Indicus*,—the first inhabiting Africa, about the Cape of Good Hope, the latter India. The African kind has the front of the head convex and inclined; the tusks larger; and the perpendicular layers of enamel, which, with the softer osseous matter, compose the grinders, exhibiting on the top, or worn surface, a number of rhomboidal spaces, which are equally observable in a transverse section of the tooth. The elephant of Asia (*Indicus*) is larger; the front of the skull, instead of being convex, is deeply concave, and the upper part so dilated as to exhibit two pyramidal elevations; and the grinders have the enamel layers disposed in the osseous substance in *distinct transverse parallel lines*, instead of *rhomboidal compartments*. We may add, that the grinders of the mammoth have the upper surface divided into eight, or ten, or more distinct *conic prominences*, rising at least an inch above the surface, disposed transversely in pairs, so as rather to have the appearance of belonging to some carnivorous animal than that of the elephant; and it may be suspected, with

some propriety, that its habits were different. There are several varieties in the elephant tribe, some of which may perhaps hereafter be admitted as distinct species, in addition to those already named. The elephant of India is the largest of all quadrupeds found at this time in a state of nature: its height, which has often been exaggerated by the early writers, appears to be from ten to fourteen feet; and one of the largest size is about sixteen feet long from the forehead to the tail, the circumference of the body about twenty-six, and that of the neck seventeen feet. The texture of the skin is uneven, wrinkled, and knotty, resembling the bark of an oak tree; and in the fissures, which are moist, are some bristly hairs. The legs are comparatively short and clumsy; the feet undivided, but the margins terminate by five hoofs, or toes; the tail is like that of a hog, at the end of which are a few long and large hairs. The females have two teats, very small in proportion to the animal, and placed at a short distance behind the fore legs. The eyes of the elephant are small, but they are brilliant, lively, and capable of great expression; the ears are long, broad, and pendulous, but he can raise them with great facility, and frequently uses them as a fan to cool himself, or to defend his eyes from dust or insects. He has no cutting teeth, but four large grinders in each jaw; in the upper jaw are two vast tusks, by some called the horns of the elephant, and which produce the finest ivory.* But the most singular organ of this quadruped is the trunk, which is at once the instrument of respiration, and the member by which the animal supplies itself with food; he can not only move and bend it, but can contract, lengthen, and turn it in every direction: it is about eight feet long, five feet in circumference near the mouth, and eighteen inches near the extremity; it is cartilaginous, is formed of multitudes of rings, and is like a pipe of an irre-

* From the time of Solomon, ivory has been used in ornamental works; it was one of the imports of his navy of Tarshish, whose lading was gold and silver, ivory, apes, and peacocks.

gular conic figure, widened at the end. The upper side is convex and furrowed transversely; the under side flat, and has two longitudinal rows of small protuberances. The upper part of the trunk corresponds with the extremity of the nose in other quadrupeds, and the inferior as an upper lip, including the nostrils. The trunk is a continued canal, divided into two cavities by a longitudinal partition, at the upper part of which cavities, before they enter the bones of the head, there is a movable cartilaginous plate, situated in such a manner as to enable the animal to shut the canal, and thus prevent the water, with which it occasionally fills the trunk, from entering the passage of the nose, where the organs of smell are placed. When he drinks, he thrusts his trunk into the water, and fills it by drawing up his breath; and he can then either eject the fluid to a great distance, or drink it, by putting the end of the trunk into his mouth. At the tip of this organ, which is flattish and circular, is a projecting point, or small moveable hook, of extreme sensibility, with which he can pick up the minutest substances at pleasure, taking up grains of corn, or the smallest pieces of grass, and conveying them to his mouth. The elephant is very careful of his trunk, being conscious that his existence depends upon it; indeed, it is to him as a hand, his organ of feeling and of smell, both of which senses it has in the most exquisite degree; and its strength is matchless.

In some females the tusks are so small as not to appear beyond the lip; while in others, they are almost as long and large as in one variety of the male. The grinders are so much alike in the two sexes, that one description may serve for both. The first, or milk tusks of an elephant never grow to any considerable size, and are shed between the first and second year, at which time they do not exceed two inches in length. The permanent tusks, which succeed, do not take their rise so deep in the jaw. The largest tusks Mr. Corse ever saw in Bengal did not weight more than seventy pounds; but there are some brought to the India House

from other parts weighing one hundred and fifty pounds. The grinders of the elephant may be considered as composed of distinct laminæ or teeth, each covered with its proper enamel; and these teeth are merely joined to each other by an intermediate substance, acting as a cement, which, being much softer than the enamel, wears away faster by the mastication of the food; and in a few months after these teeth cut the gum, the enamel rises considerably higher, so that the surface of each grinder soon acquires a ribbed appearance, as if growing in ridges. Like the tusks, the grinders are already formed in the very young animal; and the first set of grinders, or milk teeth, begin to cut the gum eight or ten days after birth; they are not shed or cast as the milk tusks are, but are gradually worn down, and finally have their fangs, and the sockets which contain them, removed by absorption, during the time those of the second set are coming forward; these are completely in use when the elephant is two years old. At about this period the third set begins to cut the gum; and from the end of the second to the beginning of the sixth year, the second set wears away, and the third gradually comes forward in their place. After this period other sets are produced; but in what proportion is not ascertained. We have seen, in very large teeth, iron and other metal bullets lodged in the centre: the orifice made by the ball was entirely filled up with the ivory matter, and the bullet formed a nucleus.

The grinders and tusks of the elephant are found in a fossil state in various parts of the globe, even in England. "Some years ago," says Mr. Pennant, "two great grinding teeth, and part of a tusk of an elephant, were given me by some miners, who discovered them, at the depth of forty-two yards, in a lead mine in Flintshire: the grinders were almost as perfect as if just taken from the animal. A stag's horn was found with them."

When the elephant first comes into the world, it is as large as a young boar, and equal to an ox in size when six

months old. The young suck the teats of the female (which are situated near the breast) with the mouth, and not with the trunk, as is erroneously stated; for at such times they throw the latter backward over their head. Elephants are said not to attain their full growth till they are thirty years old. Their longevity is well known: even in a state of slavery and labour some have been said to live from one hundred to one hundred and thirty years. Their flesh is eaten by the natives, and the trunk is said to be a delicious morsel; while, according to Shi Chin, the gall, skin, and bones, are used in medicine.

These animals cannot endure cold, and are averse to an excess of heat. They do not often go into deep water, although they swim well; but they delight in drawing up water into their trunks, when they do not drink it, and amuse themselves in spirting and dashing it around. The ordinary food of the elephant consists of herbs, the tender branches of trees, fruits, and grain. They do not ruminate; and they abhor animal food. They are fond of marshy places, and love to wallow in the mire like a hog. They also do great damage to fields of corn, and to plantations of coco palms, tearing up the trees by the roots to get at their tops. Elephants often sleep standing, but are not incapable of lying down, as is erroneously believed: they are very mild and harmless, except when wounded, or in the rutting time, when they are seized with a temporary madness. At other times they are peaceable and gentle, even in a savage state, and are said never to use their weapons but in self-defence. Their social disposition is such, that they are very seldom found alone, but march always in large troops; the females carrying their young on their tusks, embracing them at the same time with their trunk. It is very dangerous to offer them the least injury, for they run direct at the offender, whom they either pierce with their tusks, or seize with their trunk, dart him into the air like a stone, and then trample him under their feet. After being once attacked by man,

they are said never to forget the injury, but seek every opportunity of revenge; and as they are endowed with an exquisite sensation of smell, they can scent a man at a great distance, and trace him by his footsteps. Travellers, therefore, in countries they inhabit, kindle large fires, and beat drums during the night, in order to prevent their approach. As they constantly graze in large troops, and consequently lay waste whole fields in an hour, the Negroes and Indians use every art to prevent their visits; but these precautions are sometimes unavailing, since they chase away the inhabitants and domestic animals, and sometimes throw down their habitations. In Africa, where elephants are far more numerous than in Asia, the natives are compelled to live in subterranean dwellings in order to avoid them. Elephants are not easily terrified, but the most effectual mode of checking their career is by fire-works, such as squibs, crackers, &c., the effects of which are so sudden, that the animals frequently turn back; and when one runs, all the rest follow his example.

When tamed, the elephant is the most obedient of all animals, and becomes entirely attached to his keeper; he readily understands the sounds of his master's voice, be it the language of anger, satisfaction, or command. He receives his orders with attention, and lowers his body for the convenience of those who mount him, and caresses his friends with his trunk; the latter he also uses for the purpose of lifting burdens, and assists those who are loading him; and when yoked in a waggon or cart he pulls cheerfully, unless abused by injudicious chastisement. A tame elephant will do as much labour as six or eight horses, but he requires a quantity of food in proportion; indeed, they are the principal beasts of burden in many parts of Africa and the East Indies, carrying sacks and bundles of all kinds upon their back, neck, and tusks; scarcely ever, too, do they lose or damage any thing committed to their care. These animals were much used in war by the ancient Indians, and are so

employed to this day in Cochin and other parts of Malabar, and also in Tonquin, Pegu, and Siam, where fire-arms are little used. Both the Greeks and Romans soon learnt to get the better of these monstrous animals in war; they opened their ranks and allowed them to pass through, only endeavouring to kill their guides. In those provinces of India where fire-arms prevail, elephants are commonly used for carrying magazines, military chests, or even field-pieces, in swampy grounds; and they will carry from three to four thousand weight. The conductor of the elephant is usually mounted on his neck, and makes use of a small iron rod, sharp at the end, and hooked, with which he urges the animal forward, by pricking its head or ears, but, in general, a word from the keeper is sufficient to direct him. In their travels the Indian princes are attended by hundreds of these animals, some being employed to convey the ladies who compose the seraglio, in latticed cages made for that purpose, and covered with branches of trees; whilst others transport immense quantities of baggage, with which the sovereigns of the East are always provided in their marches. They are likewise made use of as the dreadful instruments for executing condemned criminals, a task which they perform with great dexterity; at the word of command they break the limbs of the criminal with their trunks, or they trample him to death, or impale him on their enormous tusks, just as they are directed by their keepers. Elephants are sometimes caught in pit-falls covered with boughs of trees. At the Cape of Good Hope it is customary to kill them by the chase, for the sake of their teeth. Three horsemen, well mounted, and armed with lances, attack the elephant alternately, each relieving the other as they see their companion pressed, till the beast is subdued.

Three Dutchmen (brothers) who had made large fortunes by this business, determined to retire to Europe, and enjoy the fruits of their labours, but resolved, before they went, to have a final chase by way of amusement. They met with

their game, and began to attack in the usual manner; but, unfortunately, one of the horses fell down and flung his rider. The enraged animal instantly seized the unhappy man with his trunk, flung him up a vast height in the air, and received him on one of his tusks ; then, turning towards the two others, as if with an aspect of revenge and insult, held out the impaled body writhing on the bloody tooth.

The singularity of one of the processes by which these powerful beasts are caught and domesticated, renders it one of the most interesting and surprising spectacles in the world. Three or four thousand villagers are employed, under the direction of as many hundred huntsmen, for two or three months, encircling an extensive tract of country, at one end of which is built a large and strong wooden kraal, or nearly circular palisade, of about a quarter of a mile in circumference. The hunters continue gradually reducing their circle, and frightening, by fires and shouts, the elephants which are within it towards the kraal, through the gates of which they are at last obliged to enter; and as soon as they are in, a portcullis drops and encloses them. There is another gate with a portcullis, which leads into a still stronger stockade, about twenty feet wide, and that leads into a third, which is still stronger, but so narrow that one elephant only can pass at a time. When a sufficient number of elephants are driven from the first kraal into the second, the portcullis is then let down by a man who is stationed for that purpose at the top of the place where they enter. The beasts being greatly squeezed by their numbers and size endeavour to make their escape, and run into the third kraal. As soon as an elephant has fairly entered this, cross beams are inserted between the upright poles, which effectually prevent his return. As he advances the same process is continued till he arrives at the very end, where he is jammed so closely as not to be able to move backwards or forwards. Strong ropes with running knots are then fastened round his legs and neck, and these last are drawn through

ropes fastened on the necks of two tame elephants accustomed to the business, who are brought to the end of the kraal where the prisoner is confined. The poles which form the end of it are then removed, and the ropes which fasten the neck of the wild elephant to those of the tame ones are tightened, till he is made secure between his new companions. The ropes are then taken from his legs, and his two conductors oblige him, by squeezing him with their bodies, and beating him with their trunks, if refractory, to accompany them to the place set apart for his stable. He is there tied so fast, with his head between two poles fixed in the ground, that he cannot move; and, from the peculiar docility of his nature, is soon rendered sufficiently tame to become useful for the purposes of man.

Another way of taking the wild elephant is by means of tame females trained for that purpose. These the Indians conduct into the woods, where the artful female soon inveigles a male out of the herd. As soon as she has made the conquest, and separated the male from his family, the Indians, with a great noise, terrify the rest, and put them to flight, while others make themselves master of the beast thus detached from his friends.

Numerous anecdotes have been related of the sagacity of the elephant; and we shall conclude our account of this quadruped by relating the following well-authenticated facts:—

A soldier, at Pondicherry, was accustomed to give a certain quantity of arrack to one of these animals every time he got his pay; and having one day intoxicated himself, and being pursued by the guard, who wanted to put him in prison, he took refuge under the elephant, and there fell fast asleep. The guard in vain attempted to drag him from this asylum, for the elephant defended him with his trunk. On recovering from his intoxication, the soldier was in dreadful apprehensions when he found himself under the belly of this enormous animal; but the elephant, which unquestionably

perceived his terror, relieved his fears by immediately caressing him with his trunk.

In India elephants were once employed in launching ships. One was directed to force a very large vessel into the water; the work proved superior to his strength: his master, with a sarcastic tone, bid the keeper take away the "lazy beast" and bring another; the poor animal instantly repeated his efforts, fractured his skull, and died on the spot.

An elephant of Adsmeer, which often passed through the bazaar or market, as he went by a certain herb-woman always received from her a mouthful of greens; at length he was seized with one of his periodical fits of rage, broke his fetters, and, running through the market, put the crowd to flight, among others this woman, who, in her haste, forgot a little child she had brought with her; the animal recollecting the spot where his benefactress was wont to sit, took up the infant gently in his trunk, and placed it in safety in a stall before a neighbouring house.

Another in his madness killed his cornac, or governor; the wife, seeing the misfortune, took her two children and flung them before the elephant, saying, "Now you have destroyed their father, you may as well put an end to their lives and mine." It instantly stopped, relented, and, as if stung with remorse, took the eldest boy, placed him on his neck, adopted him for his cornac, and never afterwards would permit any body else to mount it.

Mr. Navarette says, that at Macassar an elephant driver had a cocoa-nut given him, which, out of wantonness, he struck twice against his elephant's forehead to break. The day following the animal saw some cocoa-nuts exposed in the street for sale, and taking one of them up with his trunk, beat it about the driver's head, and killed him on the spot.

THE CAT KIND.

We now come to a bloody and unrelenting tribe of animals, that disdain to own man's power, and carry on unceasing hostilities against him. The class of the cat kind are chiefly distinguished by their sharp and formidable claws, which they can hide and extend at pleasure. They lead a solitary, ravenous life, neither uniting for mutual defence, like graminivorous animals, nor for their mutual support, like those of the dog kind. This cruel and ferocious tribe seek their food alone; and, except at certain seasons, are even enemies to each other. The dog, the wolf, and the bear, are sometimes known to live on vegetables or farinaceous food; but the cat kind, such as the lion, the tiger, the leopard, and the ounce, seldom devour any thing but flesh, and would starve upon other provisions. They are, in general, fierce, rapacious, subtle, and cruel, unfit for society among each other, and incapable of adding to human happiness. However, it is probable that even the fiercest could be rendered domestic, if man thought the conquest worth the trouble. Lions have been yoked to the chariots of conquerors, and tigers have been taught to tend those herds which they are known to destroy; but these services are not sufficient recompense for the trouble of training and keeping them.

Many other tribes of animals are classed with difficulty, having but few points of resemblance, and, though alike in form, have different dispositions and different appetites; but those of the feline race, although differing in size, or in colour, are yet nearly allied to each other, being equally fierce, rapacious, and artful: nor are they less remarkable for the sharpness and strength of their claws, which they thrust forth from their sheath when they seize their prey, than for the shortness of their snout, the roundness of their head, and the large whiskers which grow upon the upper

lip. Their teeth, also, are very formidable, but rather calculated for tearing their prey than chewing it: for this reason they feed but slowly; and while they eat, generally continue growling to deter others from taking a share. In the dog kind, their chief power lies in the under jaw, which is long, and furnished with muscles of amazing strength; but in these the greatest force lies in the claws, which are extended with great ease, and their gripe is so tenacious that nothing can open it. The hinder parts in all these animals are much weaker than those before; and they seem less made for strength than agility. Nor are they generally endued with the swiftness of many other animals, but mostly owe their subsistence rather to catching their prey by surprise than to hunting it fairly down. They all seize it with a bound, at the same time expressing their fierce pleasure with a roar; and the first grasp generally disables the captive from further resistance: yet, with all these qualifications for slaughter, they seem timid and cowardly, and seldom make an attack, like those of the dog kind, at a disadvantage; on the contrary, they generally fly when opposed against a force that is superior, or even equal to their own. The lion himself will not venture to make a second attempt where he has once been repulsed with success. For this reason, in countries that are tolerably inhabited, the lion is so cowardly that he is often scared away by the cries of women and children.

The cat, which is the smallest animal of this kind, is the only one that has been taken under human protection, and may be considered as a faithless friend, brought to oppose a still more insidious enemy, and whose strength is not sufficient to make its anger formidable.

The lion and the tiger, as before observed, may be tamed and rendered subservient to human command; yet, even in their humblest and most familiar moments, they are still dangerous, since their strength is such that the smallest fit of anger or caprice may have dreadful consequences.

Pl 36.

J. Le Keux Sc.

R. Sands Jun.r del.

THE LION.

Drawn by E. Landseer.

J. Le Keux Sc.

LIONESS

and Bitch — from Gross's Menagerie.

London: Published Jan. 1st 1830, by J. Le Keux Penton Place & R. Sands Brewer St.t

THE LION.

Felis Leo. Linn. *Le Lion.* Buff.

The arrangement of the teeth of the cat tribe is as follows: — Six incisors, two canine, and six molar teeth in each jaw; sometimes there are four of the latter in the upper jaw. The pupils of the eye of this tribe sometimes contract in a vertical line, at others in a circle; and the hinder feet have three toes, while the front have four, each armed with a retractable claw.

The lion has short round ears; face covered with short hairs; upper part of the head, chin, the whole neck and shoulders, with long shaggy hairs, like a mane; hair on the body and limbs short and smooth, but long on the bottom of the belly; limbs of vast strength: the colour of the hair is tawny, but on the belly inclines to white. The length of the largest of these animals, from nose to tail, is about eight feet; the tail four feet long, tufted with long black hairs. The lioness, or female, is less, and wants the mane: she has eight teats, four of which are pectoral and four abdominal. The tongue of the lion is beset with bristles inclining backward; these are so large and strong, that he readily lacerates the skin of other animals. His teeth, also, are so powerful, that he breaks and crushes the bones of animals with perfect facility, and often swallows them with the flesh. It is said that about thirteen pounds of raw flesh are requisite for the ordinary subsistence of a lion daily; but in confinement five pounds are sufficient. He endures hunger better than thirst, and laps like a dog.

The roaring of the lion is strong and loud; but when he is irritated his cry is shorter, repeated more suddenly, and is still more terrible than his roaring; at such times he stamps with his feet, beats his sides with his tail, agitates the hair of his head and mane, moves the skin of his face, and shews his teeth. Then the aspect of the lion, if he

presents his front full to the view of the observer, is impressively grand,—his head large and rounded, his forehead square, his flowing shaggy mane (which he can erect at pleasure) surrounding his awful front, his huge eye-brows, his round and fiery eye-balls, his pendulous lips, and formidable armament of teeth, conspire altogether to render his appearance truly terrific.

Lions are very ardent in their amours: when the female is in season she is often followed by six or eight males, who roar incessantly, and enter into furious combats, till one remains master of the field, and takes peaceable possession of her; he then accompanies her to some secret recess. From the report of the French naturalists, the amours of these animals differ in no respect from those of the common cat; they are not more cordial on those occasions than the latter; for, like that animal, they growl and wrangle as though offended with each other, particularly the female. The lioness is naturally weaker and more timid than the lion; but in defence of her young she becomes more ferocious and terrible than the lion himself; and when the danger is great, she will sometimes transport them from place to place in her mouth.

Naturalists have differed greatly as to the precise limits of the lion's existence. Buffon states it to be from twenty to two and twenty years. It is, however, certain that it lives much beyond that time. The lion called Pompey, which died in the year 1760, had lived in the Tower of London above seventy years; another died there at the end of the last century, at the age of sixty-three. Several of these animals have been bred in the Tower, and the period of gestation is ascertained to be between three and four months, and the lioness usually brings forth three or four at a time. The cubs when first born are nearly the size of a small pug-dog, and continue to suck their dam about twelve months. Their colour is a mixture of reddish and gray, with a number of small brown bands, which are most distinct on the dorsal

spine and near the origin of the tail; and those stripes scarcely disappear when the whelps are a twelvemonth old. The mane of the male begins to make its appearance when the animal is about three years or three years and a half old; the age of maturity is said to be about the sixth or seventh year — in the female at the sixth year. The strength of the lion is so prodigious, that, as is affirmed, even a single stroke of his paw is sufficient to break the back of a horse; and he can carry off a middle-sized ox or buffalo with ease. He is said to devour as much food at once as will serve him for two or three days, and when satiated, to remain in a state of rest in his den till impelled by hunger to leave it, and prowl again in search of prey.

The lurking-place of the lion is generally chosen near a spring, or by the side of a river, where he has an opportunity of surprising such animals as resort to the water to quench their thirst. When hungry, he will attack any animal that presents itself; but he is so formidable, that all endeavour to avoid him, and this circumstance often obliges him to conceal himself and lie in wait, that he may take his victim by surprise. For this purpose he crouches on his belly in some thicket till his prey approaches, and then, with a prodigious leap, he seizes it at the first bound. Should he miss his object, we are told he desists from further pursuit, and measures back the ground step by step, and again watches another opportunity. The lion is supposed to be destitute of scent in that superior degree which most animals of prey possess, and, like the greyhound, to hunt by sight alone. Some have even represented him as incapable of finding his prey except by accident, and that he is indebted to the jackal, a quadruped of excellent scent, for the discovery of it. This is quite an erroneous supposition; the jackal does not attend the lion to provide for him, but being a small and comparatively feeble creature, follows his track to pick up and feed upon the refuse of those animals which the lion destroys, and does not entirely devour.

The lion is an inhabitant of most parts of Africa, and rarely of the hot parts of Asia, such as India and Persia; a few are still met with in the deserts between Bagdad and Bassorah, on the banks of the Euphrates. Niebuhr also places them among the animals of Arabia; but their proper country is Africa, where their size is larger, their numbers greater, and their rage more tremendous, being inflamed by the influence of the burning sun on a most arid soil. Dr. Frier says, that those of India are feeble and cowardly. In the interior parts, amidst the scorched and desolate deserts of Zaara or Biledulgerid, they reign sole masters: they lord it over every beast, and their courage never meets with a check, where the climate keeps mankind at a distance; the nearer they approach the habitations of the human race the less their rage, or rather, as before observed, the greater is their timidity. A cooler climate, again, has a similar effect; but in the burning deserts, where rivers and fountains are denied, they live in a perpetual fever—a sort of madness fatal to every animal they meet with.

The author of the *Economy of Nature* gives a wonderful proof of the instinct of these animals in those unwatered tracts. There the pelican makes her nest; and in order to cool her young, and accustom them to an element they must afterwards be conversant in, brings from afar, in her great gular pouch, sufficient water to fill the nest: the lion and other wild beasts approach and quench their thirst, yet never injure the unfledged birds, as conscious that their destruction would immediately put a stop to those grateful supplies. It is to be observed, that whenever the lion can get water he drinks a great deal.

Happily the number of this species is said to be decreasing. The Romans brought many more lions out of Libya in one year for their public spectacles than could at this time be found in the country; for example, Scylla, the dictator, exhibited, during his prætorship, a hundred lions; and Pompey the Great brought together, in the grand

circus, no fewer than six hundred animals of this species. Cæsar also collected altogether four hundred for the purpose of public exhibition.

Lion fights were common under the consulate, and the Romans delighted in such brutal entertainments. Adrian, it is said, often caused a hundred lions to be destroyed in the circus; and Antoninus and Marcus Aurelius were equally prodigal in pandering to the savage appetites of the people.

It is remarked by modern writers that lions are much less numerous in Persia and the Indies than formerly; and we are assured, by the best of the late French travellers, that there are at present no lions throughout Turkey.

Dr. Sparrman and other writers agree that the character of the lion for courage and generosity is to be admitted with considerable caution. "It is not in magnanimity (says the former writer), as many will have it to be, but in an insidious and cowardly disposition, blended with a certain degree of pride, that the general character of this animal consists, though hunger must naturally have the effect of now and then inspiring so strong and nimble a creature with uncommon intrepidity and courage."

The quality of the lion's courage, though natural, is certainly, as we have demonstrated, exalted or depressed according to the success with which he is accustomed to employ his power. Where he has never experienced the sagacity of man, or the power of his arms, the lion disdains and sets him at defiance, instead of betraying fear at his approach. A single lion of the desert has been known to attack a caravan, and if, after a violent and determined engagement, he finds himself weakened, he retreats fighting, always keeping his face to his opponents, but, acquainted with man and the power of his arms and ingenuity, he feels sensible of his inferiority, and employs stratagem to overcome him.

In illustration of this fact we shall refer our readers to the following circumstance:—An elderly Hottentot, in the

service of a Christian, near the upper part of Sunday river, on the Cambdebo side, perceived a lion following him at a distance for nearly two hours together. Thence he naturally concluded that the lion only waited for the approach of darkness in order to make him his prey. In the mean time he could not expect any other fate than to serve for this fierce animal's supper, inasmuch as he had no weapon of defence but a stick, and knew that he could not get home before it was dark. But as he was well acquainted with the nature of the lion, and the manner of its seizing upon its prey, and at the same time had leisure between whiles to ruminate on the ways and means in which it was most likely that his existence would be put an end to, he at length hit upon a method of saving his life. For this purpose, instead of making the best of his way home, he looked out for a kilpkrans (so they generally call a rocky place, level and plain at top, having a perpendicular precipice on one side of it), and, sitting himself down on the edge of one of these precipices, he found, to his great joy, that the lion likewise made a halt, and kept the same distance as before. As soon as it grew dark the Hottentot, sliding a little forward, let himself down below the upper edge of the precipice, upon some projecting part or cleft of the rock, where he could just keep himself from falling. But in order to cheat the lion still more, he set his hat and cloak upon the stick, making at the same time a gentle motion with it over his head, a little way from the edge of the mountain. This crafty expedient had the desired success. He did not stay long before the lion came creeping softly towards him like a cat, and, mistaking the skin cloak for the man himself, took his leap with great precision, and fell headlong down the precipice, directly close to the Hottentot.

"The lion (says Buffon) when taken young, and brought up amongst domestic animals, is easily accustomed to live, and even sport innocently with them. When led into captivity he discovers symptoms of uneasiness, without anger or

peevishness; on the contrary, he assumes the habits of gentleness, obeys his master, and caresses the hand that feeds him." We are well assured, from ocular demonstration, that the keepers of these animals frequently play with them, and with a degree of familiarity, little short of temerity, put their hands or heads in their mouths, pull out their tongues, or hold them by the teeth, or even beat them, all which the animal seems to bear with sullen composure, while he is provided with a sufficiency of food. But it is dangerous to let the lion suffer from hunger, or provoke him by ill-timed teasings, which he has been known to resent.

Labat informs us of a gentleman who kept a lion in his chamber, and the servant employed to attend it usually mixed his caresses with blows. This was for some time borne by the lion. One morning, however, the gentleman was awakened by an unusual noise in his room, and, drawing the curtains aside, he perceived it to proceed from the lion, which was growling over the body of the unfortunate man, whom it had just killed, and had separated his head from his body. The terror and consternation of the gentleman may easily be conceived; he flew out of the room, and fortunately obtained assistance to secure the animal from committing further mischief. When kindly treated, however, they exhibit great attachment to their masters. A lion and lioness, which were brought over from Africa about thirty years ago, were kept in the same den at Exeter 'Change, in London, and were attended by a negro who had reared them from whelps. They permitted this man to enter their den, and would fawn upon and play round him. He frequently had a table in their den, with pipes and glasses, and, sitting down there, would quietly smoke and regale himself. If, on these occasions, their gambols became too rude, he had only to stamp his foot, and, by his countenance, to express his displeasure, and they would immediately cease, and quietly lie down by his side. But the man would not venture to expose himself with them at all times, particularly if they were irritated by

the spectators, as they sometimes were, through wantonness; and it is not recollected that he ever did thus whilst they were feeding. When the man left Exeter 'Change the female pined away, and soon afterwards died. Many similar instances might be here adduced (did our limits permit) of the affection of lions for individuals of the human species; and these might lead us to believe that the story was not altogether a fable which is told by Aulus Gellius of Androcles, a Roman slave, being known and caressed in the circus by a lion which was destined to tear him in pieces, but which recollected the unfortunate man who had cured a wound in its leg in its native deserts.

That the instincts of lions are subdued in favour of weaker animals, particularly dogs, is well known. The old lion in the Tower is still in the recollection of some persons, who spared a spaniel thrown into his cage to be devoured, and which lived happily with it for several years. A similar circumstance is related by Jean Macquet, a traveller, in the reign of Henry IV. of France, who had seen a dog at Morocco under the protection of several lions, to whom he had been thrown for food.

Some years ago, a lioness in the Museum of the Jardin des Plantes at Paris, permitted a dog to live in her den, and was excessively fond of it. A similar instance has since occurred in Cross's Menagerie, in London, of the attachment of a lioness to a terrier bitch (see our Plate XXXVI.); she seemed pleased and gratified with it, and would frequently lick and caress it with apparent affection.

In the year 1787, a lion, about three months old, was caught in one of the forests of Senegal, and Mr. Pelletan, the director of the African Company in that colony, undertook to superintend the animal's education. He treated it with kindness; and the creature, sensible of the benefits it received, seemed on all occasions highly delighted with the attentions and caresses of its friends, and was in most respects as tractable as any domestic animal could be. It

was always delighted to be in a room where many persons were assembled, and it lived in perfect harmony, and on the best terms, with the other animals that were kept in its master's house, sleeping in the same place with sheep, cats, dogs, geese, monkeys, ducks, &c. without offering them the least molestation.

At the Cape, lions are frequently hunted by the colonists both for the sake of their flesh, which, though possessing a disagreeable flavour, is eaten by the negroes; and for their skin, which those people use as a mantle or a bed: the grease, which is of a penetrating nature, is likewise used in medicine.

In the day-time, and in the open plains, from ten to sixteen dogs will easily overcome a lion of the largest size; nor is there any necessity that the dogs with which the lion is hunted should be very large: as he is less swift than the dogs, the latter easily overtake him; on which the lion turns round, and waits for the attack, shaking his mane, and roaring with a short and sharp tone, or sits down on his haunches to face them. The hounds then surround him, and, rushing upon him all at once, are thus, by their united efforts, enabled to subdue or tear him in pieces; but the strokes of his paws are generally fatal to some of his assailants.

Mr. Pringle, who was a settler on the eastern frontier of the Cape colony, and, in 1822, was residing on his farm or "location" at Bavian's river, has given us an excellent description of a lion-hunt in which he and several of his countrymen were engaged. We should deprive his account of its interest were we to give it in any other words than his own. He says:—

"One that had previously purloined a few sheep from my kraal came down and killed my riding-horse, about a hundred yards from the door of my cabin. Knowing that the lion, when he does not carry off his prey, usually conceals himself in the vicinity, and is apt to be dangerous in prowling about the place in search of more game, I resolved to have him

destroyed or dislodged without delay. I therefore sent a messenger round the location to invite all who were willing to assist in the enterprise to repair to a place of rendezvous as soon as possible. In an hour every man of the party (with the exception of two pluckless fellows who were kept at home by the women) appeared ready mounted and armed. We were also reinforced by about a dozen of the Bastaard, or Mulatto Hottentots, who resided at that time upon our territory as tenants or herdsmen, an active and enterprising, though rather an unsteady race of men. Our friends the Tarka boors, many of whom are excellent lion hunters, were all too far distant to assist us, our nearest neighbours residing at least twenty miles from the location; we were, therefore, on account of our inexperience, obliged to make our Hottentots the leaders of the chase.

"The first point was to track the lion to his covert. This was effected by a few Hottentots on foot, commencing from the spot where the horse was killed. They followed the *spoor** through grass, and gravel, and brushwood, with astonishing ease and dexterity, where an inexperienced eye could discern neither foot-print nor mark of any kind, until at length we fairly tracked him into a large *bosch* or straggling thicket of brushwood and evergreens, about a mile distant.

"The next object was to drive him out of this retreat, in order to attack him in close phalanx, and with more safety and effect. The approved mode in such cases is to torment him with dogs till he abandons his covert, and stands at bay in the open plain. The whole band of hunters then march forward together, and fire deliberately, one by one. If he does not speedily fall, but grows angry, and turns upon his enemies, they must then stand close in a circle, and turn their horses rear outward; some holding them fast by the bridles, while the others kneel to take a steady aim at the lion as he approaches, sometimes up to the very horses'

* A foot-mark.

heels, couching every now and then as if to measure the distance and strength of his enemies. This is the moment to shoot him fairly in the forehead, or some other mortal part. If they continue to wound him ineffectually till he becomes furious and desperate, or if the horses, startled by his terrific roar, grow frantic with terror, and burst loose, the business becomes rather serious, and may end in mischief, especially if all the party are not men of courage, coolness, and experience. The frontier boors are, however, generally such excellent marksmen, and withal so cool and deliberate, that they seldom fail to shoot him dead as soon as they get within a fair distance.

"In the present instance we did not manage matters quite so scientifically. The Bastaards, after recounting to us all these and other sage laws of lion-hunting, were themselves the first to deviate from them. Finding that the few indifferent hounds we had made little impression on the enemy, they divided themselves into two or three parties, and rode round the jungle, firing into the spot where the dogs were barking round him, but without effect. At length, after some hours spent in thus beating about the bush, the Scottish blood of some of my countrymen began to get impatient, and three of them announced their determination to march in and beard the lion in his den, provided three of the Bastaards (who were superior marksmen) would support them, and follow up their fire should the enemy venture to give battle. Accordingly they went (in spite of warning of some of the more prudent men among us) to within fifteen or twenty paces of the spot where the animal lay concealed. He was couched among the roots of a large evergreen bush, with a small space of open ground on one side of it; and they fancied, on approaching, that they saw him distinctly glaring at them from under the foliage. Charging the Bastaards to stand firm, and level fair should *they* miss, the Scotch champions let fly together, and struck, not the lion, as it afterwards proved, but a large block of red stone, beyond

which he was actually lying. Whether any of the shot grazed him is uncertain; but, with no other warning than a furious growl, forth he bolted from the bush. The pusillanimous Bastaards, in the place of now pouring in their volley upon him, instantly turned, and fled helter-skelter, leaving him to do his pleasure with the defenceless Scots, who, with empty guns, were tumbling over each other in their hurry to escape the clutch of the rampant savage. In a twinkling he was upon them, and with one stroke of his paw dashed the nearest to the ground. The scene was terrific. There stood the lion, with his foot upon his prostrate foe, looking round in conscious power and pride upon the bands of his assailants, and with a port the most noble and imposing that can be conceived. It was the most magnificent thing I ever witnessed. The danger of our friends, however, rendered it a moment too terrible to enjoy either the grand or the ludicrous part of the picture. We expected every instant to see one or more of them torn in pieces; nor, though the rest of the party were standing within fifty paces, with their guns cocked and levelled, durst we fire for their assistance. One was lying under the lion's paws, and the others scrambling towards us in such a way as to intercept our aim at him. All this passed far more rapidly than I have described it. But luckily, the lion, after steadily surveying us for a few seconds, seemed willing to be quits with us on fair terms; and, with fortunate forbearance (for which he met an ungrateful recompense), turned calmly away, and, driving the snarling dogs like rats from among his heels, bounded over the adjoining thicket, like a cat over a footstool, clearing brakes and bushes, twelve and fifteen feet high, as readily as if they had been tufts of grass, and, abandoning the jungle, retreated towards the mountains.

"After ascertaining the state of our rescued comrade, (who fortunately had sustained no other injury than a slight scratch on the back, and a severe bruise in the ribs, from the force with which the animal had dashed him to the ground,)

we renewed the chase, with Hottentots and hounds in full cry. In a short time we again came up with the enemy, and found him standing at bay under an old mimosa tree, by the side of a mountain stream, which we had distinguished by the name of Douglas Water. The dogs were barking round, but afraid to approach him, for he was now beginning to growl fiercely, and to brandish his tail in a manner that shewed he was meditating mischief. The Hottentots, by taking a circuit between him and the mountain, crossed the stream, and took a position on the top of a precipice, overlooking the spot where he stood. Another party of us occupied a position on the other side of the glen, and, placing the poor fellow thus between two fires, which confused his attention and prevented his retreat, we kept battering away at him till he fell, unable again to grapple with us, pierced with many wounds.

"He proved to be a full-grown lion, of the yellow variety, about five or six years of age. He measured nearly twelve feet from the nose to the tip of the tail. His fore leg below the knee was so thick that I could not span it with both hands; and his neck, breast, and limbs, appeared, when the skin was taken off, a complete congeries of sinews."*

It is rather with a view of exterminating these formidable beasts of prey that the Africans hunt them, though, as already observed, they make use of the skin, flesh, &c. The bushmen know that the lion generally kills and devours his prey at sunrise or sunset. On this account, therefore, when they intend to destroy lions, they notice where the antelopes are feeding at the rising of the sun: if they perceive that they are alarmed and run off, they conclude that they have been attacked by the lion. Marking with accuracy the spot from whence the alarm took place, about eleven o'clock in the day, when the sun is very powerful, and the object of their search is supposed to be fast asleep, they carefully

* Notes to Pringle's Ephemerides.

examine the ground, and, finding him in a state of unguarded security, they take aim and lodge a poisoned arrow in his breast. The moment the lion is thus struck he bounds from his lair as helpless as the stricken deer. The work is done, and the bushmen know where, in the course of a few hours, they will find him either dead or dying.

THE ROYAL TIGER.

Felis Tigris. Linn. *Le Tigre.* Buff. *Royal Tiger.* D'Obsonville.

All writers upon natural history agree in considering the tiger as the most beautiful, but at the same time the most ferocious of quadrupeds; yet it is difficult to arrive at any correct conclusion respecting the size or beauty of this terror-striking creature, from his captivity in this country, as want of exercise, and other causes, tend materially to depress the growth, and render the skin less brilliant than when they roam at large in their native deserts.

Several animals have been confounded by various authors under the name of tiger, as the panther, leopard, and jaguar, which has created considerable confusion. The true tiger, however, is the largest of the whole species; and, in order to distinguish him, he has been denominated the royal tiger, and is oftentimes of a tremendous size. Buffon mentions one, seen in the East Indies by M. de Lalande Magore, that measured fifteen feet, including the tail. Hyder Ally presented one to the Nabob of Arcot that was eighteen feet in length; and at Tonquin, according to the testimony of the Abbé Richard, they are often found as large. In his zoological character and sanguinary propensities, this animal is closely allied to the lion, to whom he bears resemblance in his internal structure; but is at once distinguished from him by the peculiar marking of his coat. The general colour is an orange-yellow ground, with a series of transverse bands, of a blackish hue, forming a bold and striking contrast. The

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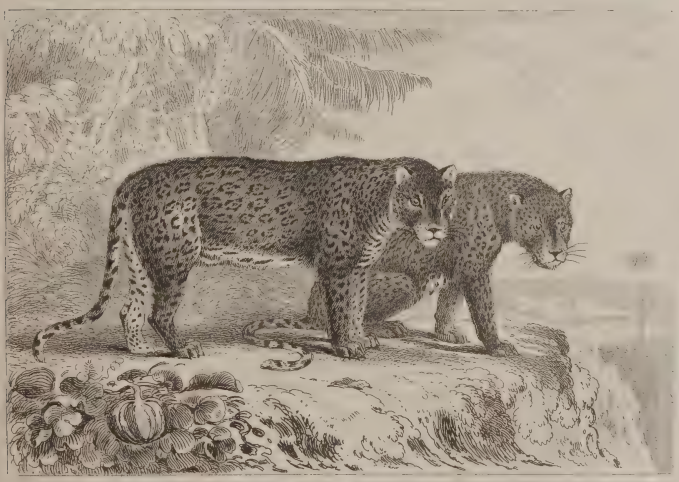
R. Sands. del. et fc.

THE TIGER.



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J. Sands. fc.

THE PANTHER.

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tail is also annulated with the same: the number of stripes on the body varies considerably, but is generally between twenty and thirty; those on the tail almost invariably about fifteen; the face, throat, and under side of the belly being nearly white. On the legs there are several oblique bands, similar to those on the body and tail. He has no mane; and his whole frame, although less elevated than that of the lion, exhibits a more slender and graceful form.

The head of the tiger is short and round, with small ears, and with teeth exhibiting a truly formidable appearance. He is the most rapacious and cruel of all the carnivorous animals, his thirst for blood being insatiable. Fierce without provocation, and cruel without necessity, he attacks, destroys, and tears in pieces, every animal with equal fury and rapacity, never desisting while an object remains in his sight that he can overcome. He lays waste the country he inhabits: men, flocks, and herds, alike fall victims to his fury, cruelty, and cunning. He occasionally attacks the lion, elephant, rhinoceros, and panther. His bravery fears neither the opposition of men nor animals: the former he not unfrequently makes his prey; and he is said by some writers to prefer human flesh to any other.

Among many instances which we could adduce where individuals have fallen victims to these animals, we may mention that related by Dr. Shaw, where the son of Sir Hector Monro was, in 1792, attacked by a tiger, accompanied by a tigress, in such a manner as caused his death within twenty-four hours. This animal lies in ambush for his prey, and not unfrequently destroys his own young. Sometimes he forms his ambush on the borders of rivers and streams, where other animals are compelled to repair, by the heat of the climate, for their drink; but his velocity in running is so great, that few creatures escape inevitable destruction.

These animals are peculiar to Asia. They are generally natives of Bengal, the kingdoms of Siam, Tonquin, Sumatra, and China, also the countries north of China, the Indus, and

those of Southern Asia. Buffon says they are also found in Southern Africa; but Mr. Pennant observes, that he could find no authority for his assertion, inasmuch as the animals called tigers by Ludolphus and Kolben were only the leopard or panther. The same gentleman also observes, that this animal is by an improper misnomer given to Africa and America. The natives of Sumatra are so infatuated with the belief that they are animated by the souls of their ancestors, that they seldom destroy them.

If the tiger misses, or is unable to destroy his object, which is very seldom, he instantly retreats; but if, on the contrary, he subdue it, be it man or beast, he carries it off with ease; and if he be undisturbed, plunges his head into the body of the animal up to his eyes, as if he actually wished to satiate himself with the blood previously to devouring the body.

Pliny described this animal as of tremendous swiftness, for which he has been censured by modern writers, they considering the term swiftness as most applicable to the spring he takes when he pounces on his prey, and not to his running. In this remark they are contradicted by two celebrated travellers, Père Cerbillon and Mr. Bell, who confirms the accuracy of Pliny's observation.

The tigress is very much attached to her young, of which she generally brings forth four or five in a litter. She carefully defends them, and, although furious at all times, yet she is tremendous when robbed of her offspring. She endeavours to regain them, braving every danger, and pursues her robbers (who are generally mounted upon the fleetest horses) so very closely, that they are frequently compelled to release one of them, in order to check her progress: this she conveys to some place of safety and concealment, and then again pursues the hunters, who are oftentimes forced to drop one more of her cubs, in order to escape safely with the others. In these desperate adventures the hunters have several boats at the nearest river or bank of the sea, to which

they speedily retreat with their prize. The tigress, however, pursues them to the water's edge, and when all chance of recovery is gone, she then expresses her agony by the most piteous and hideous lamentations, which are so great as to excite terror wherever the sound is heard.

Naturalists have not ascertained precisely how long the female goes with young, but it is supposed to be about the same time as the lioness.

The roar of this animal is chiefly heard in the night, and is said to be exceedingly dreadful. It begins by intonations and inflections; is deep, melancholy, and slow; it presently becomes more acute; then, the animal exerting himself as if suddenly, utters a violent cry, which creates a distracting impression on the mind.

When taken young, the tiger is easily tamed: our menageries contain several, and the faquirs, or mendicant priests of Hindostan, keep them in a very docile condition. Mr. Atkins, the proprietor of an interesting travelling menagerie, has succeeded in producing lion-tiger cubs from the lion and tigress. They were whelped at Edinburgh on December 31, 1827. The colour was not so bright as the tiger species generally, and the bands were more obscurely marked. They were very playful, and the mother exceedingly tractable.

The skin of the tiger is held in great estimation throughout the east, more especially by the Chinese, who use it as a covering to the seats for their judges. The Indian physicians attribute several extraordinary medical virtues to many portions of the tiger's body. The tongue, dried and reduced to powder, they consider as a specific for nervous diseases; the fat and the eyes for many disorders incidental to the human frame.

The tiger is hunted with great pomp and ceremony, and is a favourite diversion in many parts of the East. Combats are not unfrequently exhibited between the tiger, lion, buffalo, and elephant; but only as an amusement on some grand

occasions. In these fights the death of one or both is frequently the result. They consider the tiger as a more powerful animal than the elephant, and usually guard the head of the latter with a defensive covering previously to the engagement.

In the island of Java, when a tiger and a buffalo are to fight together for the amusement of the court, they are both brought upon the field of combat in cages. The place is surrounded by a body of men, four deep, with levelled pikes, in order that, if the creatures break through, they may be killed immediately. This, however, is not so easily effected, for many of these poor wretches are often torn in pieces or dreadfully wounded by the enraged animals. Every thing being in readiness, the cage of the buffalo is first opened at the top, and his back is rubbed with certain leaves, which have the singular quality of occasioning an intolerable degree of pain, and which, from the use they are applied to, have been called buffalo-leaves. The door of the cage is then opened, and the animal leaps out, raging with pain, and roaring most dreadfully. The cage of the tiger is next opened, and fire is thrown in to make the beast quit it, which he does generally running out backwards. As soon as the tiger perceives the buffalo he springs on him, while his huge opponent stands expecting him, with his horns near to the ground, to catch him upon them, and throws him in the air. Should the buffalo succeed in this, and the tiger recover, the latter generally loses all wish of renewing the combat; and if he avoids this first attempt of the buffalo, he springs upon him, and, seizing him by the neck or other parts, tears the flesh from his bones; but in most cases the buffalo has the better.

The emperor sometimes makes criminals condemned to death fight with tigers. In such cases the man is rubbed with borri or turmeric, and has a yellow piece of cloth put round him; a kris is then given him, and he is conducted to the field of combat. The tiger, who has for a long time been

kept fasting, falls upon him with the greatest fury, and generally strikes him down with his paw; but if the man be fortunate enough to avoid this, and to wound the animal, so that it quits him, the emperor commands him to attack the tiger, when he is generally the victim; and even if he ultimately succeed in killing his ferocious antagonist, he must suffer death.

An officer, who had long been stationed at the court of Java, related that he was once witness to a most extraordinary occurrence of this kind: a Javanese who had been condemned to be torn in pieces by tigers, and for that purpose had been thrown down from the top into a large cage, in which several of those animals were confined, fortunately fell exactly upon the largest and fiercest of them, across whose back he sat astride, without the creature's doing him any harm, but even, on the contrary, appearing intimidated; while the others also, awed by the unusual posture and appearance which he made, did not attempt to destroy him. He could not, however, avoid the punishment of death, to which he had been condemned, for the emperor commanded him to be shot dead in the cage.

Besides combat and hunting, these animals are destroyed by various means, and different contrivances have been invented for this purpose by the more ingenious tribes of Indians. One of the most effectual, and yet the most simple, is that of fastening an animal to a tree in a known track of the tiger, which they are enabled to ascertain by his footsteps. They then place close to the spot a vessel filled with water, containing a saturated solution of arsenic: the tiger, after destroying his victim, eagerly drinks the water to quench his thirst, so that he is thus inevitably poisoned; and after his death, the Indians search for and take possession of his body.

In many parts of India there is a popular idea that the rhinoceros and tiger live in friendship; but this arises, as we have already remarked in our account of the former animal,

from their being oftentimes found near each other, in the vicinity of rivers.

THE PANTHER.

Felis Pardus. Linn. *La Panthère.* Buff.

After the tiger the panther appears to occupy the most conspicuous place among the feline tribe, and greatly resembles it in its ferocious habits. He in general measures about six feet in length, exclusive of the tail, which averages about three feet. His colour is a bright and beautiful tawny yellow, with numerous black, round, or somewhat annular marks, chiefly disposed into circles of four or five in number; and occasionally there is a central spot in each circle, but of a much deeper colour. According to Major Hamilton Smith, the panther of the ancients, a specimen of which he saw stuffed at Hesse-Cassel, measured five feet three inches from the nose to the insertion of the tail, and stood about two feet nine inches high at the shoulder. The difference that characterises this variety is the entire buff colour of the animal, which assumes a darker tint, approaching to red, on the nose, and more ochry on the back and sides. The belly and insides of the limbs partake of this general colour, but are paler, but nowhere is there any white. There are seven vertical rows of interrupted or imperfect circles on the sides of the animal. These, as well as the like open spots which mark all the panthers, have, as Major Smith observes, the inner surface of the circles more fulvous than the general colour of the sides. These spots descend on the outside of the leg down to the knees. The forehead, cheeks, sides, and insides of the limbs, are also spotted pretty closely, with a narrow black bar crossing the lower part of the throat.

The native climate of this individual animal was unknown, but it had lived for some time in the menagerie of

the elector. It is considered by Major Smith as the true panther known to the ancients, but questioned by Mr. Griffiths, who is led to doubt it from the panther being often confounded with the leopard, jaguar, &c.

The common panther differs from the leopard, which has rarely any central spots in his circular markings: on the face and legs the spots are single, and on the top of the back is a row of oblong spots, which increase as they approach the tail. The belly and breast are white, the former being marked with transverse dusky stripes, the latter and the tail with larger irregular black spots.

The panther is a native of Africa, from Barbary to the most remote parts of Guinea. In size and cruelty it is next to the tiger, and bears the same general enmity to the whole animal creation. "It is to Africa," says Mr. Pennant, "what the former is to Asia, with this alleviation, that it prefers the flesh of brutes to that of human beings; but when pressed with hunger, attacks every living creature without distinction. Its mode of seizing its prey is the same as that of the tiger, always attacking by surprise, lying ambushed in thickets, or quietly creeping on its belly till it reaches its victim. It will ascend trees in pursuit of monkeys and smaller animals, so that no creature is secure from its attacks. It is untameable, always retaining its fierce, malevolent aspect, and perpetual murmuring growl."

The female panther is pregnant nine weeks, as also is the leopard; and the young when born are blind, and continue so for about nine days; but the American jaguar has its eyes open at its birth, and the mother is pregnant four months.

The ancients were well acquainted with these creatures, especially the Romans, who imported immense numbers from Africa; for we are informed by Pliny, that Scaurus exhibited at one time one hundred and fifty panthers, Pompey the Great four hundred and ten, Augustus four hundred and twenty,—and these are only a few instances that might be

mentioned. Yet, in all probability, they only thinned the coasts of Mauritania of these animals, inasmuch as Guinea and the inland parts of the country swarmed with them. This species, together with the leopard and the ounce, Dr. Sparrman observed as remote as the Cape of Good Hope.

The panther is devoid of the noble qualities of the lion, and when taken is untameable; for his ferocity is so great, that when subjugated, and under the control of man, he appears to be rather subdued than tamed.

For the purpose of capturing these creatures, the hunter generally erects a hiding-place within musket-shot of a tree, to which he suspends some flesh, or a skinned animal, as a bait for the unsuspecting beast, on whom he fires while he is eating, and the ball generally proves fatal. For greater caution, the man waits until the following day, when a dog, properly trained, is sent forward to track the panther in his retreat. Should he be still alive, the unfortunate dog becomes his victim, and thus saves the hunter from exposing himself until he has ascertained that the beast is no longer capable of committing mischief.

THE LEOPARD.

Felis Leopardus. Linn. *Le Leopard.* Buff.

The leopard differs from the panther in being of a much paler yellow hue, and considerably smaller in size, the markings, too, are much closer, although, to a person not conversant with the distinguishing characteristics of the two animals, they are liable to be, as they have been, confounded with each other. The differences, however, are not easy to describe, or even to illustrate. "He is," observes Mr. Bennett, "from the shores of the Mediterranean to the immediate neighbourhood of the Cape of Good Hope, familiar to every part of the monster-bearing continent of Africa; while in the east of Asia his fatal spring and murderous talons are

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THE LEOPARD.

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THE OUNCE.

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equally known and dreaded by the mild and timid Hindoos, the polite but still barbarous Chinese, and the fierce and savage islanders of the great Sumatran chain. Throughout this immense tract of country he varies in a trifling degree, and that merely in his comparative magnitude, in the size, markings, and shape, also in the greater or less intensity of his colouring; in the more essential points of form and structure, as well as in the character and disposition, he is every where the same."

He is generally about four feet in length, the tail being about two and a half feet long. On the lips are several black lines, with bands of the same colour on the inner sides of the legs; two or three imperfect black circles, alternating with white, also occur towards the extremity of the tail, which is entirely white underneath.

He partakes of all the ferocious characters of his tribe, and imitates, on a reduced scale, the habits and manners of the lion and tiger. In his search of prey he endeavours to avoid man. Monkeys, antelopes, and the smaller animals, generally become his victims; but when pressed by hunger, he then fears neither man nor beast, and it requires on these occasions no ordinary share of courage and skill for the hunter to preserve himself from the infuriated animal. Like those we have described, he lies in ambush for his prey, springing upon and devouring almost every species of animal he has power to overcome. They have been known to descend in numbers from their retreats into the plains, creating great devastation among the cattle and smaller animals that graze there. He has a restless and forbidding eye, ferocious aspect, and all his motions are violent and precipitate.

When taken young, the leopard is capable of being tamed, and most of our menageries present one or more specimens of these creatures. The female in the Tower is very docile, having been there about five years; whilst the male, who has been an inmate of that fortress nearly two years, is still as savage as on the day of his arrival.

The negroes capture them by pitfalls slightly covered by hurdles, with a bait of flesh. The negresses make collars of their teeth, to which they attribute certain virtues. The panther is its enemy, and destroys great numbers of them. According to Kolben, the flesh of the leopard is excellent, and eats better than the finest veal, being both delicious and nourishing; and the young is as tender as a chicken. The skins of this creature are imported into Europe, and are highly valued, sometimes selling from five to ten pounds each and upwards.

Leopards are generally found in Senegal, Guinea, and most parts of Africa, Asia, and some of the shores on the Mediterranean.

THE LESSER LEOPARD.

According to Mr. Pennant, who is the only writer that has described it, this variety is not half so large as the species just noticed. It was of a bright yellow colour, spotted, like the common leopard, in circles; on each side of the upper lip there was a great black spot; the face was covered with black, the chin white, and the breast marked with small spots, as also the belly, upon a white ground; the tail much shorter than that of the common leopard, and tapering towards a point. It was a native of the East Indies, an inmate of the Tower for some time, and seemed a very good-natured creature.

THE HUNTING LEOPARD.

Felis Jubata. Linn. *Le Jaguar ou le Leopard, and le Guepard.* Buff.

This animal, called the cheetah in India, is so peculiar and so different from the other varieties of the leopard, as almost to induce naturalists to give it a place at the end

of the genus approaching to the dog, so far as to call it, without impropriety, the canine cat. In the teeth, and organs of sense, it approaches the feline tribe; but in the non-retractibility of its claws it differs from the genus in general.

The hunting leopard is about the size of a large greyhound, with a narrow chest, and long legs; of a thin make in the body and limbs, apparently calculated rather for speed than strength, assimilating in a remarkable degree to the canine tribe to which we have compared it. It possesses a certain aptness, or facility, in being trained for field sports, and is, therefore, a species of animal intermediate between the two genera. It likewise exhibits the first step from the perfect fitness for carnivorous and predatory habits in the loss of the retractile power of the talons.

This creature is of a pale yellow colour on the upper part, white underneath, and covered all over with very small irregular spots; it has a slight erect mane down the neck, and the pupil of the eye is round. It is described by writers as a native of India; but Mr. Griffiths is inclined to believe there are two, one peculiar to India and another to Africa; and he observes, that the Indian, or maneless species, appears to be taller, having a longer neck, a smaller head, and a shorter muzzle than the African. This animal is tamed for the chase of antelopes and other creatures; and it is said that he is conveyed to the field in a carriage, or on a pad behind the saddle of a horseman, with a hood over his eyes; and when the game is started the hood is removed, and he is sent out in pursuit. It follows by leaps or bounds, and if unsuccessful in taking its prey after a few efforts, declines the pursuit, and returns to its keeper.

There are a few other varieties of the leopard, but they differ only in colour, their essential characteristics being the same.

THE ONCE.

Felis Uncia. Linn. *L'Once.* Buff.

This species, which is analogous to the leopard, differing from that animal but little in size, is of a dull white colour, with a tawny or yellowish cast, the whole being covered with irregularly-sized spots, and markings of black. It is smaller than the panther: its body rarely exceeds in length three feet and a half, and the tail is about three feet. The spots on the legs are small, and thinly dispersed; the tail is full of hair, irregularly marked with large black spots. It inhabits Barbary,* Persia, Hyrcania,† and China,‡ the Bucharian and Altaic chain, and to the west of Lake Baikal. It is an animal of a more gentle nature than many of its genus, inasmuch as the natives of many parts of Persia tame it for the purposes of the chase; but it is greatly inferior to the dog. The once hunts principally by the eye, and is much more expeditious in killing the game than dogs possibly could be.

It is supposed to have been known to the ancients, and by some is considered as the smaller panther of Oppian, and the panthera of Pliny. Major Hamilton Smith considers a specimen that was brought from the Gulf of Persia to be a mountainous species, and, from the length of the fur, which was shaggy, to reside in the higher snowy regions of northern Persia; but Mr. Griffiths differs from this gentleman, regarding it only as a variety of the leopard species.

* Where it is called Faadh. † Chardin.

‡ The skins are sent from China into Russia, where they are sold for twenty shillings a piece.

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R. Sands. del et fc.

THE JAGUAR.

R. Sands. fc.

R. Sands. Jun.r del.

THE PUMA.

London: Published March 1st 1830. by J. Le Keux. Ponton Place & R. Sands. Brewer St.t

THE JAGUAR.

Felis Onca. Linn. *Le Jaguar ou le Congar noir.* Buff.

This animal is almost as large as the oriental tiger, and nearly as dangerous. The Portuguese call it *onca*, which Linnæus has adopted as its specific name. It is peculiar to America, and is not unfrequently called the tiger of that continent, especially of its more northern parts. It is about the size of a large wolf, and is of a bright fawn colour above, marked along the flanks with four ranges of black spots in the form of eyes, that is, with rings more or less complete, and a black point in the centre: underneath it is white, radiated crosswise with black. The marks, however, differ much in different individuals; nor do the two sides of the same animal always agree. D'Azara saw a variety perfectly white, with the spots indicated by a more opaque appearance.

The young of the jaguar is born blind; and on reviewing the history of this animal, we find that it bears great resemblance to the panther or leopard of the old world. They are strong and voracious, and are able to seize and carry off a sheep or deer with great ease, and yet so cowardly as often to be put to flight by a shout. They attack cows, and even bulls of four years old; but the horse is their favourite prey. They are, however, not unfrequently destroyed by the enormous serpents that frequent the savannahs, and these are stated to entwine themselves around their body, and thus strangle and destroy them: in the ant-eater they also find a powerful enemy.

The jaguars are solitary animals, or are seen only in pairs. They inhabit thick forests, near great rivers; and if they come into the cultivated parts, it is always by night. When pressed by hunger they will attack men, and ascend trees, in search of the smaller animals, with the greatest facility.

THE PUMA, OR COUGUAR.

Felis Puma et F. Concolor. LINN. *Couguar.* BUFF. *Leo Americanus.* HERN.

This animal is the largest of all the American beasts of prey, and is denominated by the Spaniards of Peru and Chili the American lion. It measures rather more than five feet from nose to tail, and the latter is generally about two feet and a half. It has a small head, and no mane. Its predominant colour is a uniform yellow; chin white; breast and belly ash colour; the inside of the legs the same; and the tail of a dusky, ferruginous tinge, with a black tip. According to D'Azara, it is less ferocious, and more easily killed than the jaguar. It lies concealed in the underwood, and not in caverns, like that animal. Its depredations are generally confined to quadrupeds of a middling size, as calves, sheep, &c.; but its ferocity is more insatiable than its appetite, since it destroys many at an attack, and carries away perhaps only one. If it has more than sufficient for a meal, it conceals and covers it for a second repast, whereas the jaguar is not so provident.

In North America their fury seems subdued by the rigour of the climate; the smallest cur, in company with its master, makes them seek security by running up trees; but even there they are destructive to domestic animals. They lie close on the branch of some tree, till the moose or other deer passes beneath, when they drop on them, and soon destroy them.

The puma purs like a cat, and sometimes howls dreadfully. Its fur is soft, and the Indians cover themselves with it during the winter. The flesh is also eaten, and is said to be as good as veal. It is easily tamed; and Mr. Kean, the tragedian, had one which was perfectly docile and gentle.

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THE BLACK TIGER.

R. Sands. fc.

R. Sands Junr. del.

THE OCELOT.

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THE BLACK TIGER.

Felis Discolor. Linn. *Le Couguar noir.* Buff.

This animal is a native of America, and is generally considered as a very ferocious and destructive beast. It is about the size of a heifer of a year old, and is entirely of a deep brownish black colour on the upper parts, and of a pale gray or whitish hue underneath: the upper lip and paws are also whitish, but the tail is of the same dusky appearance as the body.

It is supposed to be a variety of the jaguar, M. de la Borde says, the black tigers frequent the sea-shore, and eat the eggs there deposited by turtles. They also devour lizards, fish, and even alligators; and in order to catch the latter, they lie down on their belly at the edge of a river, strike the water to make a noise, and when the alligator raises its head above the surface, the tiger darts his claws into the eyes, and usually succeeds in dragging him on shore. The black tiger sometimes feeds on the buds and tender leaves of the Indian fig; and they are said to be excellent swimmers.

THE OCELOT.

Felis Pardalis. Linn. *Ocelot.* Buff.

The ocelots are a group in the Feline family of middling-sized cats, distinguished by yellow spots more or less oval, bordered with black. Several individuals have been described, but whether any or all are mere varieties, or distinct species, has been doubted. D'Azara considers them all as a single species. Cuvier makes three specifically different, and Major Smith four. In their essential points, however, they are the same.

In size the ocelot is nearly as large as the jaguar. Mr.

Pennant describes it as about four times the size of a large cat; and it is generally about three feet in length and eighteen inches in height. The ground colour is a bright reddish tawny above, but nearly white on the lower part of the sides, belly, breast, and limbs. On this ground are marked many longitudinal stripes, with black margins, with differently-shaped black spots in the centre. From the top of the head several black stripes diverge towards the shoulders; and on the top of the back the line is quite continuous. The belly is marked with numerous small round spots; and the tail resembles the body in its spotted appearance. The colours of the female approach more to an ash-colour, and are not so vivid. It is a very ferocious animal, inhabiting the warmer parts of South America, Mexico, and Brazil, where it commits great ravages among the cattle.

It is considered by Shaw and others as untameable; but there is a specimen in the Tower menagerie which is tolerably docile. Although voracious, it is timid, rarely attacks men, is afraid of dogs, and when pursued flies to the woods.

CINEROUS CAT.

Mr. Pennant appears to be the only author who has described this variety, which is about the size of the ocelot. It is of a cinerous colour, palish on the legs and belly; the irides are hazel; tip of the nose red; the ears short and rounded, black on the outside, but gray within. From the nose to the eye on each side there was (in this specimen) a black line, and a white one above and beneath each eye; the sides of the mouth were white, with four rows of small black spots: from the hinder part of the head to the back and shoulders ran several narrow hollow stripes; and along the top of the back two rows of oval black spots: the marks on the sides were long, hollow, and irregular,

R Sands del et sc

THE MARGAY.

J L e Keux del et sc

THE SERVEL.

R Sands sc

R Sands Junr del

THE WILD CAT.

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extending from the shoulders to the thighs. The shoulders were barred and spotted; the legs and belly only spotted, but these were not so long as those on the body. It is an inhabitant of Guinea.

THE MARGAY.

Felis Tigrina. Linn. *Le Margay.* Buff.

This animal is about the size of the common cat, and is a native of South America. The upper part of its body is a yellowish gray, the under part white; four black lines pass from the vertex to the shoulders, and then change into a series of long streaks. The spots on the flanks are long and oblique; on the shoulders there is one vertical; on the crupper and limbs they are oval and scattered; on the inner sides of the limbs are some transverse bands; the feet are gray, and without spots; the tail has some irregular, unequal rings, to the number of twelve or fifteen; the middle of the lateral spots is paler than the edges. It measures about twenty inches in length, and the tail is about eight or nine. It is said to breed in the hollows of trees, where it resides, preying on birds and field-mice. It is very fierce and untameable.

THE SERVAL.

Felis Serval. Linn. *Le Serval.* Buff.

This animal is denominated by furriers the tiger cat, and, from the hundreds of skins that come from the Cape of Good Hope, Baron Cuvier considers it an African animal, although Shaw and others assume it to be a native of India and Thibet, where, in all probability, varieties of the same species are found. It is a very fierce and rapacious animal: it is seldom seen on the ground, residing chiefly in trees, where it makes its bed and breeds its young. It leaps with considerable

agility from one tree to another, pursuing birds. The ground of its fur is of a bright yellow, more or less gray round the lips; the throat, the under part of the body, and the interior of the thighs, is whitish. The spots are larger or smaller, and more or less numerous, in different individuals. The serval is in general about thirty inches long, and the tail nine or ten inches: the height from fifteen to twenty inches. It is very fierce and untameable.

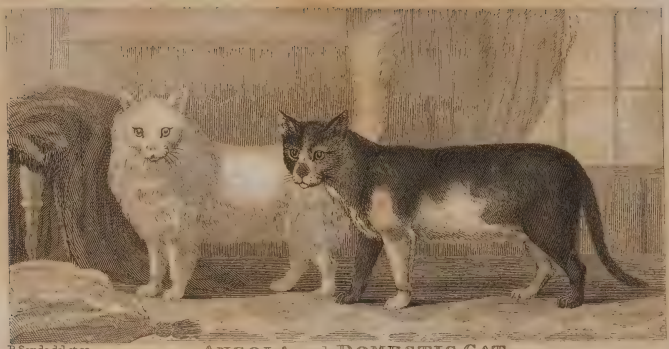
THE WILD CAT.

Felis Catus. Linn. *Chat Sauvage.* Buff.

This species seems to be the origin of the domestic cat, but owing to its wild habits, naturally acquires stronger and larger limbs, and its head also is larger. It is of a pale yellowish gray, with dusky stripes; those on the back running lengthwise, and those on the sides transversely and in a curved direction. The tail is shorter than in the domestic state, and is barred with dusky rings. The two varieties breed together; and it is no uncommon circumstance for the tame females to quit their houses during the time they are in season, go in search of male wild cats, and return home impregnated by them. It is by this means that some of our domestic cats resemble those of the wild breed.

It generally inhabits woody and mountainous districts, residing in trees, and subsisting upon birds and small animals, as hares, rabbits, mice, moles, and rats. When pressed with hunger, it creates great devastation among poultry, and oftentimes destroys kids, fawns, and young lambs. It has been denominated the British tiger, inasmuch as it is the fiercest and most destructive creature in our island.

Wild cats are found, differing but little in variety, in almost every country and climate. They are taken by traps, or by shooting them. The latter is dangerous to the sportsman, as he is liable to be attacked by the animal, especially



R. Sands del. et sc.

ANGOLA, and DOMESTIC CAT.

J. Le Keux sc.

THE LYNX.

R. Sands Jun.r del.

R. Sands sc.

THE CARACAL.

R. Sands Jun.r del.

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if it be only slightly wounded. They breed in hollow trees, generally producing four young ones at a litter.

THE MANUL.

Felis Manul. Linn.

This animal, which is an inhabitant of the wastes of Tartary and northern Asia, was first described by Dr. Pallas. It is about the size of the common fox, yet its form is much more robust in proportion. It is of a tawny colour, but the crown of the head is marked with little black spots; and there are two dusky lines running in an oblique direction from the eyes; the feet also are striped, but rather obscurely; the tail is longer than that of the domestic cat, thickly beset with hair, and encircled with ten distinct black rings, three of which are nearest the tip, and are placed so as almost to touch each other. Dr. Pallas considers this as a variety of the common wild cat.

THE DOMESTIC CAT.

Felis Catus. Linn.

As already observed, this is only a variety of the wild cat. In its domesticated state the cat varies greatly in colour, and in the length and fineness of its hair. It still retains much of its primitive ferocity, perfidy, and cruelty; nor can it be considered as entirely trusty. It is much attached to certain perfumes, particularly to the smell of valerian, marum, and cat-mint. It rubs itself against them, and, if not prevented, would destroy a whole garden where they are planted.

The manners and habits of the cat are so well known that we should tire the reader by a minute description; we shall, therefore, only select those points which are peculiar to this animal.

In the tenth and eleventh centuries, domestic cats were very scarce, and laws were passed against their mutilation, and other regulations made which shew the importance then attached to their preservation; and in the collection of Welsh statutes (*Leges Walliæ*) may be found the value of a cat of every age, and of each degree of adroitness and vigour.

It is generally stated that cats can see in the dark; but although this is not absolutely the case, it is certain that they can see with much less light than most other animals. This is owing to the peculiar structure of their eyes, the pupils of which are capable of being greatly contracted and dilated, in proportion to the degree of light by which they are affected. In the day-time the pupil of the cat's eye is very much contracted, and sometimes into a mere line; but in twilight the pupil resumes its natural roundness, and then the animal enjoys perfect vision.

The cry of the cat is loud, piercing, and clamorous; and, whether expressive of love or anger, is equally unpleasant. Its calls collect the whole fraternity of neighbouring cats; and on some occasions more than a hundred have been thus brought together. Invited by the cries of distress from a fellow-creature, they assemble in crowds, and express their horrid sympathies with loud squalls and yells; oftentimes they tear the miserable object of their apparent commiseration in pieces, and, with the most furious and blind rage, fall upon each other, killing and wounding indiscriminately.

It is only in the night that these terrible conflicts take place; and, although very rare, yet well-authenticated instances are on record of very furious ones.

The cat brings forth her young twice or three times a year, goes pregnant fifty-five or fifty-six days, and usually produces five or six at a time. She shews great fondness for her offspring, but will display the same to other kittens; and it is well known that the domestic cat will nurse and rear any young kitten newly introduced to her. Instances too have occurred where hares, rabbits, squirrels, and

even rats, have enjoyed maternal affection from one whose propensities are generally for their destruction; and she conceals her offspring from the male, lest he should destroy them.

Their whiskers appear to increase their sense of smell, and their fur readily yields electric sparks when rubbed. In general they keep themselves very clean, washing their faces and behind their ears every time they eat. They do not soil the nicest furniture, while their numerous and infinitely varying gesticulations have an elegance and levity almost unequalled by any other animal.

The sleep of the cat is generally very light. They dislike to wet their feet, and have numerous methods of torturing their prey before they destroy it. The average duration of a cat's life is about fifteen years; but we have had instances within our knowledge of their having attained to twenty-five, and even thirty years of age.

The varieties of colour in the domestic cat are well known to our readers: the tortoise-shell and the lighter varieties are considered by some authors to be of a more gentle disposition than the others.

There have been many instances of strong attachment to the human race in cats; but this attachment seems to be in general more for the house in which they have been brought up than for the persons who inhabit it. Instances are not uncommon of cats having returned of their own accord to the place from which they have been carried, though at the distance of many miles, and even across rivers, where they could not apparently have had any knowledge either of the road, or the direction in which it would lead them.

They have sometimes exhibited great affection for other animals: the celebrated Arabian horse, Godolphin, and a black cat, were for many years the warmest friends; when the horse died, in 1753, the cat sat upon his carcase till it was buried; and then crawling slowly, and apparently reluctantly away, was never seen again till her dead body was found in a hay-loft. There was also a hunter in the late

king's stables at Windsor to which a cat was so attached that whenever he was in the stable the creature would never quit his back, her favourite seat; and the horse was so well pleased with the cat's attentions, that, to accommodate his friend, he slept, as horses will sometimes do, standing. This was, however, observed to injure his health, and the cat was removed to a distant part of the country.

Cats have also their antipathies to certain animals; and it is amusing to see the discomposure and arched back which is produced in most of them by the intrusion of one of the canine species. We recollect a female cat belonging to a broker on Saffron Hill, which was not less remarkable for her ferocity against dogs than for her peculiar mode of attacking them, particularly when she had kittens. At that time she would sally out indiscriminately upon every dog that passed the door; and, jumping on their backs, apply her talons about their heads in such a manner that the howling of these unfortunate animals testified their pain, and afforded no small surprise, and frequently amusement, to the spectators.

The following curious fact is related by Dr. Anderson in his *Recreations in Agriculture*. A cat belonging to Dr. Coventry, the ingenious professor of agriculture in Edinburgh, which had no blemish at its birth, but had lost its tail by accident when it was young, had many litters of kittens, and in every litter there was one or more that wanted a tail.

There is also a hereditary variety of the cat in this country without any visible tail. It is not uncommon in Cornwall; and Dr. Leach received one from the Isle of Wight, which, however, could not be reconciled to its new habitation.

THE ANGORA CAT.

Felis Angorensis. Linn. *Chat d'Angora.* Buff.

This is the most beautiful of all the varieties: its nose, and the edges of the lips, are of a fine rose colour; the eyes

in general blue or yellow, and of a sparkling brilliancy ; and its whole aspect mild and composed. The hair is of a silvery whiteness, remarkably thick and long, especially about the neck ; and the tail, when elevated above the body, forms a beautiful plume.

Angora, the place celebrated for these cats, is in Asia Minor, not far from Smyrna. The camlets manufactured from the hair of this animal is celebrated for its fineness and beauty throughout Asia.

THE JAPAN CAT.

Japan Cat. PENNANT. *Chat Sauvage Indien.* VOSMAER.

This species is about the size of the domestic cat, with a tail about ten inches in length, and with pointed and upright ears; the face and lower part of the neck are of a whitish colour; but the breast and inferior part of the belly of a clear gray, interspersed with black, disposed in transverse streaks; along the back is a broad black band, extending over the upper part of the tail; the lower part is semi-annulated with black and gray. Its cry resembles the mewing of a great cat.

THE GUIANA CAT.

Felis Guiana. MOLINA.

Molina, in his account of Chili, describes this animal as about the size of a common cat, and as an inhabitant of the forests. It is of a tawny colour, marked with round black spots, of half an inch diameter, which extend the whole length of the back, close to the tail. In this, and in the Colorolo cat, the head is much larger than in the common cat, in proportion to the size of its body.

THE COLOROLO CAT.

Felis Colorolo. Molina. *Colorolo Cat.* Pennant.

This variety is also described by Molina, and, like the preceding, it preys on birds, mice, and occasionally commits depredations in the poultry yards. It is also an inhabitant of the forests. Its colour is white, marked with irregular black and yellow spots, the tail being encircled with black to its tip, which is larger in proportion than in the common cat.

THE KENOUK, OR JAVANESE CAT.

This animal, which was first described by Dr. Harfield, is of a grayish brown colour, exhibiting, on the body, neck, and limbs, a delicate mixture of gray of different shades. The upper parts are more intensely coloured, and inclined to tawny; the throat, cheeks, fore-part of the neck, breast, belly, and tail, underneath, are whitish. Although it resembles the common domestic cat in many points, the smallness of the ears, and their distance from the eyes, give its front a different appearance: the form of its body too is more slender: four regular series of elongated spots pass from the head to the tail, and its sides are covered with regular smaller spots as they approach the central line of the under part of the body. These peculiarities, with two transverse bands passing across the anterior part of the throat, constitute its principal specific characters. It measures about twenty-three or twenty-four inches in length, and the tail about eight inches, which is also the average height of the animal.

It is found in the large forests of Java, and its retreat is in hollow trees, where it remains during the day, but at night ranges in quest of food at the skirts of the forests,

villages, and hen-roosts. It feeds chiefly on fowls, birds, and small quadrupeds, but in case of necessity devours carrion. Dr. Harfield is of opinion that it is perfectly untameable, its natural fierceness never being subdued by confinement.

THE BENGAL CAT.

This animal, as its names implies, is a native of Bengal, and differs from the other varieties in having no dislike to water, into which it readily plunges, and will swim in search of fish for its subsistence. The head, upper jaw, and sides of the neck, back, and sides, are of a beautiful pale, yellow-brown colour, the head and face being striped downwards with black; on the back there are three rows of short stripes of the same colour, pointing towards the tail; behind each shoulder to the belly is a black line; the throat and chin are white, surrounded with a black semicircle; the breast, belly, and inside of the limbs, are also white; and the spots on those parts, and on the legs and rump, are round; the tail is long, full of hair, brown, and annulated with black.

THE CAPE CAT.

Felis Capensis. Linn.

This animal (first correctly described, in 1780,* by Dr. Forster, who calls it the tiger cat of the Cape of Good Hope) resembles the common cat in size, frequents trees, and preys on the smaller animals. The gentleman we have just mentioned was informed that it inhabited the mountainous and woody tracts; and in its wild state it is highly destructive to the hares, rabbits, jerboas, wild antelopes, lambs, and the whole feathered race. It is generally of a bright yellow

* Philosophical Transactions, vol. lxxi. 1780.

colour, with jet-black stripes and spots; the chin, throat, and breast, of a pale ash colour; along the back are black stripes; and on the sides of the neck and breast numerous small crescentic spots, pointing upwards: there are also on the legs numerous roundish spots; and the tail is very strongly, but distinctly, annulated with yellow.

THE LYNX.

Felis Lynx. Linn. *Le Lynx.* Buff.

The lynx is about the size of the fox or middling-sized dog; his colour varies; the back and limbs are of a bright red, with blackish brown spots; and round the eye there is white: three lines of black spots on the cheeks join a large black oblique band on each side of the neck under the ear: the fur of these parts is longer than elsewhere, and forms a kind of lateral beard: the forehead and top of the head are dotted with black: there are four black lines on the top of the neck, and in the middle an irregular and interrupted one: the dots form two oblique bands on the shoulders, and transverse bands on the fore-legs: the feet are yellow and spotless; the convexity of the ears is black at the base and tip; the tail is yellow-white underneath, and black at the extremity.

There are numerous varieties of this animal, but the true lynx is found in the great forests of Lithuania, Moscovy, and Siberia, and in the northern parts of Germany and the Old Continent. It is a very destructive animal, and feeds on weasels, ermines, and squirrels, which it pursues to the tops of the highest trees. It watches the approach of the hare, deer, &c., darting on them from the trees where it is concealed, seizes them by the throat, sucks their blood, and then goes in quest of further game. Of the sheep it often eats no more than the brain, liver, and intestines. Its sight is remarkably quick, and it is able to discern its prey at a great distance,

and is so artful as to dig sometimes under the doors to gain admission to a sheep-fold. When attacked, it throws itself on its back, and defends itself with its claws.

The howl of the lynx is something like that of the wolf; and it oftentimes expresses its malignity by a kind of snarling scream. Its skin is changed by climate and season; and in high latitudes, particularly in winter, the fur is much finer and thicker, and more esteemed.

THE CARACAL, OR PERSIAN LYNX.

Felis Caracal. LINN. *Le Caracal.* BUFF. *Persian Lynx.* PENNANT.

This animal resembles the common lynx in figure and aspect, and nearly corresponds in size. It differs from it, however, in not having any spots; its colour is also dissimilar, being of a reddish brown; the tail longer, and of a uniform colour with the rest of its body; its face longer, and its disposition more ferocious.

This species inhabits only the warmer climates, and is found in Persia, Barbary, India, and other parts of Asia and Africa. It is said to follow the lion, and to feed on the remains which that animal leaves of its prey; and by the Arabs it has been called the *lion's guide.*

Although tamed with difficulty, when taken young and reared with caution, the caracal may be trained for the chase, and is employed successfully in pursuit of the smaller tribes of quadrupeds; but it is said to lose its courage, and give up the chase, when it meets an antagonist of superior strength. Herons, cranes, peacocks, and others of the larger species of birds, it attacks by surprise, and overcomes them with singular address. When it has secured its prey, it holds it fast in its mouth, and lies upon it for some time motionless.

THE LYBIAN CARACAL.

This is a mere variety of the former, and is thus described by Mr. Pennant: — "A cat, with short black tufts to the ears, which are white within, of a lively red without; tail white at the tip, annulated with four black rings; with some black marks behind the fore legs. It is greatly inferior in size, being not larger than a common cat; and it inhabits both Lybia and Barbary.

Mr. Bruce has given it the name of the *booted lynx;* and it is so called by Buffon. He preys on Guinea fowl, which are very plentiful in those parts.

Another variety of the caracal is found in Bengal, with a tail as long as the legs. There is also another, having a white tail, with four black rings at its extremity. The first of the two last mentioned is probably a distinct species.

THE BAY LYNX.

Felis Rufa. LINN. *Bay Cat.* PENN.

This creature, which is about twice the size of a large cat, and is a native of North America, was first described by Guldenstedt. It is of a bright bay colour, marked obscurely with small dusky spots; the lips, throat, and whole underside of the body and limbs, are white. Beneath each eye there are three curved blackish stripes passing down the cheeks; and the upper part of the inside of the fore-legs is marked by two black bars. The hair is much smoother and shorter than is found in the common lynx.

THE CHAUS, OR CASPIAN LYNX.

Felis Chaus. LINN. *Caspian Lynx.* PENN.

Professor Guldenstedt was also the first who described this variety. It resembles the wild cat in its manners, voice,

and food. It generally measures about two feet and a half from the nose to the tail, but sometimes exceeds three feet. Its colour is a yellowish brown; but the breast and belly are of a brighter hue, or more inclining to orange; the tail is short, reaching only as far as the bend of the legs; and, besides the black tip, there are three obscure black bands at some distance from it,—likewise two dusky bars on the inside of the legs, near the bend of the knee: the tufts at the extremity of the ears are black.

It is an inhabitant of the woods and marshy districts on the borders of the western side of the Caspian Sea, in the Persian provinces of Ghilan and Masenderan, and is frequently about the mouth of the Kur, the ancient Cyrus.

THE MOUNTAIN LYNX.

Chat Sauvage de la Caroline. Buff.

This creature is an inhabitant of North America, grows very fat, and is a mild, gentle animal. It has upright pointed ears, with two transverse brown bars. The colour of the head, and the whole of the upper part of the body is of a reddish brown, marked with long, narrow stripes on the back, with numerous round, small spots on the legs and sides; the belly whitish; the chin and throat of a pure white; the tail barred with black. The length of this animal is two feet and a half—that of the tail eight inches.

It is almost disheartening to the tyro in natural history to be told of the various species of one tribe of animals that are found in a single island. Either any thing like perfection in a catalogue of animals is utterly unattainable, or the species are unduly multiplied; for, if they were to be classed only from the differences they exhibit, it would be a futile task, and the zoologist be constantly doomed to the more

difficult labour of forgetting much information he had acquired. In the tribe we have been describing, experience has taught us, from common observation with our domestic cat, for example, that in a single litter numerous varieties are oftentimes produced; so that it has required a better foundation for a correct catalogue to be made from other peculiarities.

END OF VOL. I.

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